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CRS Report for Congress

Prospective Budgeting for Medicare's Physician Service

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PROSPECTIVE BUDGETING FOR MEDICARE'S PHYSICIAN SERVICES

SUMMARY

For medicare, a central policy issue is the rapid growth of spending for physician services. Spending growth is driven by increases in the number and characteristics of beneficiaries, prices, and the number and intensity of services provided (usually called "volume"). Reforms aimed at controlling spending have focused on restraining prices. It is clear, however, that price controls alone have been insufficient; for example, between 1985 and 1986, when most physician service prices were frozen, spending for physician services increased by 14 percent.

This report examines **prospective budgeting** as a potential strategy for managing program spending. Prospective budgeting is a system in which 1) a budget is developed for a particular area and/or group of services, 2) actual spending is monitored against the budget, and 3) incentives are put in place to encourage behavior that will keep program spending within the budget.

Canada and West Germany use prospective budgets as part of their financing of physician services. The report examines these systems and finds three features that contrast with medicare and the U.S. health system: both countries have universal health insurance coverage; physician organizations are an integral part of the negotiating process that sets the budgets; and effective monitoring relies on readily available administrative data.

The report examines many of the basic issues that would be addressed in an assessment of prospective budgeting for medicare. Among the issues are: the basic purpose and scope of the budget, the geographic areas and/or physician or service groups for which budgets would be developed, methods for setting the budgets, strategies for monitoring performance, and the type of feedback used to encourage compliance.

The report examines the factors contributing to the growth in spending: demographics, prices, and volume. For the 1985-1987 period, volume was the biggest contributor to increased spending. Year to year changes in volume were also consistent by groups of procedures and physician specialty, i.e., procedure groups or specialties with high volume growth in one year tended to have high growth in the following year as well. The same was not true by geographic area, where year-to-year changes appeared random for the years examined.

The report provides illustrative simulations of prospective budgets. Principal findings include: current data quality and measurement problems would make it difficult to set and monitor budgets; random variation in expenditures in small geographic areas make the application of budgets and feedback to small areas difficult; the consequences of selecting a national or a local budget standard are significant, for example a national standard without adjustment for local price variations would concentrate penalties almost exclusively in large urban areas.

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ISSUES IN PROSPECTIVE BUDGETING FOR MEDICARE'S PHYSICIAN SERVICES

CHAPTER 1. INTRODUCTION AND BACKGROUND

This report examines issues relating to the introduction of a prospective budgeting system for medicare. The primary purpose of such a system would be to control or manage program costs, while maintaining access to high quality health care. In addition, a prospective budgeting system must accomplish this objective within the context of the multifaceted U.S. health care system. Whether a prospective budget system can meet these sometimes conflicting goals is a central concern of this report.

A prospective budgeting system has three basic elements: a budget, a monitoring system, and some form of feedback mechanism to place incentives designed to keep spending within the budget. Setting a budget involves defining its purpose and scope, establishing the geographic areas and/or types of services to which it will apply, and estimating or negotiating the specific target and subsequent updates. Monitoring a budget requires a system to track spending and/or service price and volume within the budget lifecycle. Feedback issues include defining the type of feedback, for example financial; or administrative, and deciding how to ensure that the desired incentives are put in place, while minimizing undesirable consequences.

This report focuses on Part B of medicare, which covers physician services and related medical services and supplies, rather than Part A, which covers inpatient hospital services. Attention is paid to expanding the scope of a prospective budget to include Part A, and to possible consequences of limiting the budget only to Part B; but the focus of our discussions into the nature of the issues and current and desired incentives is on Part B.

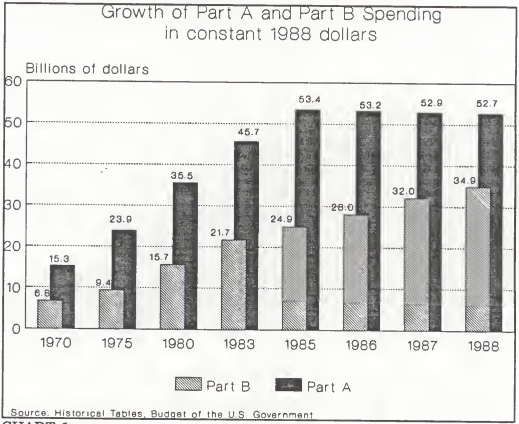
GROWTH IN MEDICARE EXPENDITURES

A. Spending Trends

The Health Care Financing Administration (HCFA) estimates that by the year 2005, medicare spending will exceed that of social security, making it the nation's most costly work-related entitlement program. This is a dramatic shift, considering that, in fiscal year (FY) 1988, social security spending was two and one-half times that of medicare ($214 billion vs. $86 billion).

The rapid growth in medicare spending is not new. Program spending, in constant dollars, has grown at an compound annual rate of 10.4 percent since 1967. At this rate of growth, real program spending doubles about every 7 years. The growth in total program spending has, however, slowed in recent years. From FY 1985 to FY 1988, real medicare spending grew at an annual rate of 3.4 percent. At this rate of growth it would take about 20 years for real spending to double.

The recent, slower rate of growth in total program spending masks continued rapid growth in Part B spending (see chart 1). Between FY 1980 and FY 1988, Part B spending, in constant 1988 dollars, grew at an annual rate of 10.5 percent. At this rate, Part B expenditures double in 7 years. Part B expenditures, which accounted for one-quarter of program spending in 1967, accounted for 40 percent of spending in 1988.


Growth of Part A and Part B Spending
in constant 1988 dollars

Source: Historical Tables, Budget of the U.S. Government

CHART 1

Payments for physician services that accounted for 73 percent of Part B payments for enrollees in FY 1987 grew at a real annual rate of 8.9 percent from 1980 to 1987. By FY 1990, HCFA estimates that spending for physician services under medicare will represent 2 percent of all Federal spending. Between FY 1986 and FY 1987 alone, real spending on physician services grew by 14.1 percent. Spending on outpatient hospital services, the second largest component of Part B expenditures has been growing even faster with an annual real growth rate of 10.2 percent from FY 1980 to FY 1987.[1]

Concern over the rising costs of medicare has led to considerable research on its causes and to numerous legislative attempts to control program costs. While it appears that some of these attempts, especially the introduction of the Prospective Payment System (PPS) for hospitals, have had some success in managing Part A spending, there has been relatively little success controlling Part B expenditures.

B. Components of the Growth in Part B Expenditures

Growth in Part B expenditures generally comprises changes in demographics, price per unit of service, number of services (volume), and types of services (intensity).[2] The relative contributions of these elements to program growth and the factors driving changes in these elements (with the exception of demographic changes) are complex, interrelated and not thoroughly understood. Indeed, even measuring some of these components of change, such as volume or intensity, has proved difficult.[3]

The aging of the U.S. population, and other smaller demographic changes, generally account for about 2 percentage points of the annual growth in Part B expenditures. Table 1.1 summarizes estimates of the other components of per beneficiary spending growth from 1967 to 1987.

---

[1] U.S. House. Committee on Ways and Means. *Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means*. 1989 ed. Washington, U.S. Govt. Print Off., 1989. (Hereafter cited as House Ways and Means Committee, Background Material and data.)

[2] Analysts also attribute some portion of the year-to-year changes in expenditures to measurement problems (see McMenamin, Peter: *A Crime Story from Medicare Part B*. Health Affairs, winter 1988. p. 94-101). These types of changes, however, are not as important in examining longer term, structural changes in program expenditures.

[3] See U.S. Library of Congress. Congressional Research Service. *Growth in the Volume of Physician Services: A Framework for Analysis*. CRS Report for Congress No. 88-466 EPW, by Gene Falk and Kathryn Langwell. Washington, June 28, 1988 (Hereafter cited as Congressional Research Service, Growth in the Volume.) and Physician Payment Review Commission. Annual Report to Congress. March, 1988.

TABLE 1.1. Estimates of Components of Per Beneficiary Spending Growth: Medicare Part B Spending Services

Time period	1980-1986[a]	1967-1986[a]	1985-1986[b]	1986-1987[b]
Total growth	108%	662%	12%	14%
Growth components				
Price	56%	77%	24%	46%
Volume/Intensity	44%	23%	72%	49%

[a] U.S. Library of Congress. Congressional Research Service. *Growth in the Volume of Medicare Physician Services: A Framework for Analysis.* CRS Report for Congress No. 88-466 EPW, by Gene Falk and Kathryn Langwell. Washington, June 28, 1988. In this report "volume" was defined as per-beneficiary changes in expenditures adjusting for increases in SMI fees.

[b] Estimates from chapter 5 of this report. Estimates are for direct effects only. The interaction of beneficiary, price, and volume/intensity growth accounted for approximately 6 percent of the annual growth. See chapter 5 for details.

As can be seen, the contribution to total spending growth has varied considerably over time. While some of this volatility may be due to measurement problems,[4] the increasing role of volume as a contributor to spending increases also reflects the effects of many factors affecting the health care market.

Trends in many factors affecting the health services market, particularly as they apply to medicare, point to increased spending. The income of the elderly has risen; real per capita income of the elderly grew from $8,381 to $9,574 (14.2 percent) from 1980 to 1986, the poverty rate of the elderly dropped from 28.5 percent in 1966 to 12.4 percent in 1987.[5] Insurance coverage for the elderly and the disabled has improved. (Catastrophic health care coverage is the most recent example, and the debate on financing long-term care continues.) Congress has attempted to control the out-of-pocket expenses of medicare beneficiaries through the participating provider program, and limits on the actual charges of some physicians. Twice over the life of the medicare program prices for physician services have been frozen, thereby reducing the cost of each unit of service. These and other factors, such as current demographic trends, tend to stimulate demand for medicare services.

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[4] Congressional Research Service, Growth in the Volume, p. 11.

[5] Committee on Ways and Means, Background Material and Data.

Other factors have tended to stimulate the supply of medical services. From 1970 to 1980 the number of physicians grew by 40 percent (the physician to population ratio grew by 26 percent), and from 1980 to the year 2000 it is estimated that the number of physicians will grow by another 49 percent (with a 32 percent growth in the physician to population ratio).[6] The considerable investment medical research has resulted in numerous advances in medical technology and techniques and the introduction of many of them has increased the "intensity" of medical services provided.

PROGRAM REFORM: PAST AND PRESENT

A. Past Reforms

Program changes aimed at controlling costs are not new to medicare, although early efforts focused mainly on Part A. The 1972 Social Security amendments established the Professional Standards Review Organizations (PSRO) program, with a primary purpose to reduce unnecessary days of hospital stays. The amendments also gave the Department of Health and Human Services (HHS) then Health Education and Welfare (HEW) the authority to establish prospective per diem reasonable cost limits and to withhold payments to hospitals for unreasonable expenses. In August 1971, the Economic Stabilization Program (ESP) brought the health care industry, including services to medicare beneficiaries, under mandatory price controls until April 30, 1974. The Voluntary Effort, initiated under the Carter Administration in 1977, attempted to encourage the health care industry to control its own costs.[7]

In the 1980s, a number of legislative actions have attempted to control program costs (and serve other purposes as well). On the hospital side, the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 placed limits on reimbursements to hospitals on a per-case basis, and placed a limit on the annual rate of increase for reasonable costs per discharge. The Government also encouraged participation in Health Maintenance organizations (HMOs) and other Competitive Medical Plans (CMPs). The Social Security Amendments of 1983 mandated the move to a prospective payment system (PPS) for hospital services.

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[6] Physician Payment Review Commission. *Annual Report to Congress.* March 1988. p. 32. (Hereafter cited as Physician Payment Review Commission, Annual Report.)

[7] Gornick, Marian, Jay N. Greenberg, Paul W. Eggers, and Allen Dobson. *Twenty Years of Medicare and Medicaid: Covered Populations, Use of Benefits, and Program Expenditures.* Health Care Financing Review, 1985 Annual Supplement. U.S. Department of Health and Human Services. 1985

For physician services, the Medical Economic Index (MEI) that limits increases in reasonable fees for physician services was implemented in 1974. The early 1980s saw the PSROs replaced with the Peer Review Organizations (PRO) program with the purpose of utilization review and quality control. The Deficit Reduction Act of 1984 froze physician fees for 15 months beginning in July of 1984 (later extended for non-participating physicians), and created the Participating Physician (PAR) program, under which doctors agree to accept assignment on all medicare claims for a specified period. Other recent changes have included the implementation of maximum allowable actual charges (MAACs) for nonassigned claims, a fee schedule and billing limits for laboratory services, and direct billing and mandatory assignment for some Part B services.

While the effects of these various changes are difficult to sort out, and may have had some temporary dampening effect on Part B spending, the fact remains that Part B spending has continued to exceed both general price inflation and price inflation within the health care sector. Therefore, interest continues in policies aimed at cost control.

B. Current Reform Proposals

Central to the recent debates on reform of medicare's physician payment system has been the question: Should medicare continue to reimburse physicians on a fee-for-service basis? It is generally recognized that the current customary, prevailing, or reasonable (CPR) payment methodology has been inflationary and has resulted in payment imbalances between, for example, primary care vs. surgical procedures. There has been less agreement on whether the fee-for-service system should be retained but modified or a new basis of payment should be implemented as was the case in Part A.

While there have been various proposals to establish physician DRGs,[8] pay physicians on a capitated basis, or encourage competitive forces to constrain costs, a major proposal before the Congress at present is to retain the fee-for-service payment system and replace the CPR methodology with a resource based relative value scale (RBRVS). Congress mandated that HCFA develop and report to Congress on a relative value scale for physician services by July 1, 1989. In support of HCFA's efforts, Dr. William Hsiao and colleagues from Harvard University developed a RBRVS based on several years of intensive study.[9] The Physician Payment Review Commission (PPRC) has endorsed the broad outlines of a RBRVS for medicare physician services, and has made recommended modifications to the methodology suggested by the Hsiao study.[10]

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[8] Physician DRGs would pay for "bundles" of physician services, for example all physician services associated with a surgery or all services provided by hospital based doctors during a single admission, on the basis of a predetermined payment rate.

[9] Hsiao, William, Peter Bran, Daniel Dunn, Edmund Becker, Margaret DeNicola, and Thomas Ketchum. *Results and Policy Implications of the* (continued...)

A RBRVS attempts to assign weights to different physician services based on the resources needed to perform the services. In the case of the Hsiao RBRVS, those factors include the work input of the physician, practice costs, and the costs of specialty training. These relative weights can then be converted to a dollar-per-service payment schedule for physician services.

C. Controlling Expenditures Within a Fee-For-Service System

For some, assuming the implementation of a RBRVS that corrects payment imbalances between specialties and types of services, the question of rising expenditures remains, because the system would not address growth in the volume and intensity of services. Several options have been suggested to attempt to control expenditures within a fee-for-service system. These options have generally fallen into categories such as increased competition, bundling services, price controls, administrative/educational initiatives, and prospective budgeting (note that many options contain elements of several of these categories).

Competitive initiatives seek to control expenditures by increasing the competitive market forces in the medicare sector--producing market efficiency. Options in this area include encouraging alternative managed care organizations (HMOs, Independence Practice Association (IPAs), etc.) to compete with the fee-for-service sector, better informing beneficiaries of their options for medical treatment (for example, publishing lists of participating physicians), and increased cost-sharing by beneficiaries (increasing price sensitivity). A concern about such strategies is that they would make only a modest contribution to cost-containment. Among other reasons, Fuchs argues[11]

> Competition often is impossible or undesirable because of economies of scale. For instance, how many hospitals are needed to serve a population of 100,000 efficiently? probably one; at most two. Similar constraints apply to competition in physician specialty care. . . . It is doubtful that a population of one million is large enough to justify

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[9](...continued)
Resource-Based Relative Value Study. The New England Journal of Medicine, v. 319, Sept. 29, 1988. p. 881.

[10] Physician Payment Review Commission, Annual Report.

[11] Fuchs, Victor R. *The Competition Revolution in Health Care*. Health Affairs, summer 1988. p. 5-24.

> enough independent maternity services or open-heart surgery teams to approximate competitive conditions. Thus it is wrong to think that competition can serve as the only control mechanism in health care.
>
> Even in markets large enough to sustain large numbers of hospitals and physicians, it is not clear that the public interest is best served by insisting that health professionals maintain rigorous arm's-length competition with one another. Patients can benefit from cooperation among physicians and hospitals, in both reduced costs and better service.

Another concern is the spillover effect that a more competitive system could have on those most at risk for receiving health care services, e.g., the uninsured. "Competition systematically attacks cross-subsidies such as charity and bad debt care by doctors and hospitals. . . . In a competitive system, if a hospital seeks to load extra charges onto its prices to cover uncompensated care, it will lose business to other hospitals that do not."[12]

In response to these and other concerns over increasing the competitiveness of the U.S. health care system, Enthoven and others suggest a "managed" approach to competition. Under this approach, cost-conscious consumers, competing health plans and "sponsors" (e.g., a regulatory agency) using available tools to ensure a properly functioning market, would form the basis for the health care system. One obstacle to this approach is that it calls for universal health care coverage, something that has been debated for many years without resolution.

Bundling options can be seen as a bridge between a full fee-for-service payment system and a fully capitated system. Some options, such as bundling services directly related to a surgery, or a series of related office visits, may still fit within the fee-for-service context. Others, such as physician Diagnostic Related Groups (DRGs), move beyond what would generally be considered fee-for-service.[13]

As noted earlier, price controls have been tried in the past to limit expenditures with little success. They are still of interest however, particularly as a short term budget saving option. Also, price controls can be part of a more general containment strategy, and this report examines the place of price mechanisms in a prospective budget system.

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[12] Enthoven, Alain C. *Managed Competition: An Agenda for Action.* Health Affairs, v. 7, no. 3, summer, 1988.

[13] For a general discussion of bundling options and other reform proposals see: U.S. Congressional Budget Office. *Physician Reimbursement Under Medicare: Options for Change.* Washington, U.S. Govt. Print Off., 1986.

Administrative/educational initiatives may take many forms. They include enhanced utilization review, development and dissemination of practice guidelines, stringent requirements for second opinions, more comprehensive peer review, and various types of penalties for noncompliance, or inappropriate activities. Most discussions of controlling expenditures agree that some initiatives in this area are needed, especially to preserve quality care in the face of financial constraints. On the other hand, there is considerable concern over whether these types of options by themselves can control program expenditures. This report discusses administrative or educational initiatives as components of a prospective budget system.

FOCUS OF THIS REPORT: PROSPECTIVE BUDGETING

This report focuses on prospective budgeting as a potential tool for controlling program expenditures. This focus does not imply that other strategies might not be more or less effective. Neither does the focus assume that prospective budgeting can be an effective means for controlling cost while meeting other program objectives, such as quality and access. Indeed, as the report makes clear, there are obstacles to a successful budgeting system such as the lack of institutional structures for negotiation, the lack of reliable, quickly available data for monitoring, and the fact that the medicare program is only one part of the health care system in the United States, unlike many other developed countries with universal health care systems.

On the other hand, prospective budgeting has been used successfully in other countries. As chapter 3 points out, while many developed countries experienced rapid growth in the health care sector during the 1960s and early 1970s, a number have controlled growth, in part through forms of prospective budgeting. On the other hand, U.S. expenditures, as a share of gross domestic product, have continued to grow at a higher rate than most other countries.

This report attempts to fill in some of the knowledge gaps that exist in the design and implementation issues of a prospective budget system, and looks particularly at prospective budgeting in the context of the U.S. health care system and the medicare program.

STRUCTURE OF REPORT

This report comprises five major sections. Chapter 2 examines the basic features of a prospective budget system, the principal decision points, and the issues and potential consequences of such decisions. The basic features of a prospective budget system include:

- the **purpose** of the system--is it, for example, meant to be a small component of an overall cost-containment strategy or the major long term mechanism for controlling costs;
- the **scope** of the prospective budget--will it cover only physician services or all of medicare, or something in between;

- the **geographic areas** that will be the basic unit covered by a budget--for example, will budgets be designed for each county, prevailing charge area, or State;
- will there be **sub-budgets** for purposes of monitoring compliance or enforcing budget targets;
- the range of **feedback** options that could be used to place the desired incentives in the payment system, for example, withholding portions of fees or using a bonus structure for compliance.

The chapter examines each of these design features with respect to a number of issues:

- are **institutional arrangements**, such as physician organizations, adequate for the task;
- what are the **basic incentives** placed on physicians and beneficiaries by design choices, and how might those incentives affect the ability of the budget to control total expenditures or affect the quality or access to care;
- what might be the consequences of design decisions to the **non-medicare health care market**.

Chapter 3 examines the international experience with prospective budgeting. It concentrates on Canada and West Germany; two countries that have used prospective budgeting in the physician services sector of their health care systems. The chapter follows the same design feature framework as chapter 2, and pays particular attention to the role that negotiation plays in the setting of budget targets, and on the monitoring and feedback mechanisms used to enforce the budgets.

Chapter 4 provides a detailed look at the technical considerations in setting up a prospective budget system. The chapter first focuses on how a budget might be determined. Particular attention is paid to issues such as:

- the use of a **national v. a local** budget baseline
- the use of a **fixed or a rolling base** for updating the baseline
- the role that **negotiations** might play in setting budgets
- **adjustments** that might be made to a basic budget such as demographic, price, volume, service mix, and access adjustments.

Next, the chapter discusses how performance would be **monitored**. Among several topics, the chapter emphasizes **data and information** requirements for an effective monitoring system. The chapter concludes with a detailed discussion of feedback mechanisms. Feedback is divided into financial and administrative options, and the discussion includes a range of each type, and the incentives presented by various options.

Chapter 5 addresses several questions using data from the Part B medicare data (BMAD) files for 1985, 1986, and 1987. The chapter explains changes in expenditures as a function of the number of beneficiaries, the price per unit of service, and the volume/intensity of services. The chapter examines changes in allowed charges due to price and volume by type of service, procedure group, physician specialty and geographic region. Other questions include:

- Is the growth in volume consistent from year-to-year?

- How much stability is there from year-to-year in the growth of prices and volume of services at various geographic levels?

Chapter 6 provides illustrative simulations of budget targets. The simulations do not suggest options for a particular design of a prospective budget system. Rather, they illustrate a number of the issues that have been raised throughout the report. The chapter examines year-to-year changes in reimbursements by geographic level and notes problems in the timeliness and quality of data available for monitoring a budget system. The simulated budgets are constructed using the Average Annual Per Capita Cost (AAPCC) data developed by the HCFA actuaries. Budgets are constructed at the national, state and county level, using both a locality-specific and national budget standard. Budget targets for 1985, 1986, and 1987 are compared to actual reimbursements for those years. The simulations highlight the consequences of the geographic level chosen for a prospective budget system and the standard used to construct the budget.

CHAPTER 2. THE BASICS OF PROSPECTIVE BUDGETING

Prospective budgeting is a policy tool that, if carefully designed and implemented, offers a mechanism that may control total expenditures within an institutional framework that permits physicians to continue to exercise clinical judgment and to make appropriate choices on behalf of patients. Operationally, prospective budgeting creates incentives within the health care system to increase efficiency, by addressing volume as well as price. Previous policies directed toward price controls have had unanticipated effects on volume and, consequently, may have led to increases in total expenditures. A principal advantage to a prospective budget policy is that it addresses the outcome desired--control of total expenditure growth--rather than price or volume, independently, and still permits decisions about appropriate care to remain with providers and patients rather than relying on government regulation. However, to obtain these benefits, the design of a prospective budget policy for the medicare program requires consideration of the unique characteristics of the United States health care system.

Other countries have used prospective budgeting as a policy tool within the context of a broad national health care system. The apparent effectiveness of these policies, however, may be due, in part, to their imposition on the total health care system of these nations. Specifically:

- Cost-shifting from one payer to another isn't possible when total health expenditures are limited.

- The payment system doesn't encourage differential access to quality care, since the total expenditures policy offers no reason to prefer one patient over another or to treat one patient differently from another.

- Physicians cannot avoid dealing with the difficult problems of allocating health care resources efficiently, if the total system is subject to a budget. Therefore, physicians face incentives to work together within a cooperative organization to achieve optimum outcomes under a national health system.

Prospective budgeting as a policy tool for controling expenditures raises a number of concerns that are not present for a national health care system:

- Access to care may be reduced for medicare beneficiaries, if physicians and other providers perceive other patients and payers as more desirable in terms of revenue and/or administrative complexity.

- Quality of care provided to medicare beneficiaries may decline if physicians and other providers respond to budget controls by changing service patterns and mix in ways that negatively affect outcomes.

- Cost-shifting to other payers may occur if providers don't become more efficient in the medicare market but, instead, charge more to non-medicare payers to cover "losses" on medicare.
- Since medicare accounts for almost 30 percent[14] of total physician revenues, it would be important to consider, for any specific type of budget, the strength of the incentives for physicians to change practice patterns, become more efficient, and to work cooperatively.

The potential effectiveness of a prospective budget policy for the medicare program, or for a subset of medicare services, is dependent upon consideration of these issues during the design of the system. While there are no international precedents for a prospective budget policy directed toward a subset of a nation's population, it may be feasible to design a structure that properly focuses incentives and rewards providers for appropriate responses.

In this chapter, we address the basic issues for prospective budgeting and prepare a foundation for assessing alternative approaches to designing a prospective budget approach to controlling medicare Part B expenditures. This foundation is then used to examine operational issues for the development of a medicare prospective budget in chapter 4 of this report.

DEFINING PROSPECTIVE BUDGETING

Prospective budgeting is a term that sometimes has been used interchangeably with terms such as "expenditure targets" and "expenditure caps" and "global budgeting". While there is much that is similar among the various terms used to generally describe these approaches, for purposes of this paper, prospective budgeting is defined as a policy approach that includes:

- Setting a prospective budget for a defined set of services, for a defined geographic area, and/or group.
- Monitoring the actual volume, intensity, and expenditures for the defined set of services, using the prospective budget as the measure of performance.

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[14] Sunshine, Jonathan and Julie Swartzman. *Medicare's Share in U.S. Physicians' Revenues*. Unpublished, draft paper by staff of the PPRC. Sept. 29, 1989. This paper adjusts the usually cited 22 percent of physician revenues attributed to medicare (Letsch, Levit, and Waldo, 1988) to include medicare's coinsurance, deductible, and balanced billing. This adjustment yields a 28 percent share of physician revenues. Elimination of physicians who typically do not see medicare beneficiaries in significant numbers (e.g., pediatritians, obstetritian/gynecologists) from the calculations raises medicare's share of physician revenues to one-third.

- Establishing clearly defined sets of responses, and mechanisms for implementing those responses, to actual performance that exceeds the prospective budget.

These are the elements of any prospective budgeting system. The details of these basic elements will vary depending upon the objectives of the policy and the assessment of the effectiveness of alternative response mechanisms, given the specific set of services included in the prospective budget. In addition, the design will depend upon the characteristics of the entire health care system, as discussed above, and upon the relationship between the entire system and the subset to which the budget applies.

BASIC ISSUES FOR PROSPECTIVE BUDGETING

Design of a prospective budgeting system for an established health care program requires that a number of basic issues be considered before the operational aspects of the prospective budget are addressed. These issues include:

- Purposes of prospective budgeting. The approach to development of a system for prospective budgeting will differ depending upon whether the purpose is to impose a rigid cap on expenditures for a specified time period or whether the prospective budget is intended to be a monitoring tool with mild administrative responses to exceeding the budget, or some purpose in between.

- Institutional arrangements. Does the necessary administrative structure exist to implement the budget policy. For example, do physician organizations exist that can be part of a negotiation process for setting and enforcing a prospective budget.

- Interaction with payment system. The design of a prospective budget system also will address the implications of the incentives that consumers face and the effect of those incentives on physicians' ability to control total volume and/or modify practice patterns. While consumers with substantial out-of-pocket liability will be more amenable to such changes, out-of-pocket liability has been declining and would be expected to decline even further if full implementation of the Catastrophic Act of 1988 takes place.

  Physician reimbursement policies that underlie total expenditures also are design considerations. If individual fee-for-service reimbursement is the norm, then physicians who respond to prospective budgeting incentives by reducing volume, or changing to a more efficient service mix, will receive less income from the medicare program.

- Scope of the prospective budget. A prospective budget covering all of medicare will require a different design than a budget that focuses only on physicians' expenditures under medicare. It is particularly important to consider the scope of the budget from the perspective that shifts may occur from services subject to the budget to services not subject to the budget.

- **Geographic areas included in the prospective budget**. Smaller areas may experience random fluctuations in health expenditures, and, therefore, a budget policy may subject providers to penalties for actions that are outside of their control. On the other hand, in small areas, incentives can be more focused and providers may be able to establish organizations that help them respond appropriately to the budget incentives.

- **Subbudgets within areas for monitoring**. There may be the need for subbudgets within the basic budget area. For example, if, within a geographic region, expenditure growth is concentrated in a particular group of services or specialties, a separate budget may be desirable for those services or specialty groups.

- **Options for feedback**. These may be financial or administrative. Financial incentives have the dual effect of directly affecting provider income and containing the total expenditures that may occur in a particular period. Administrative feedback may change provider behavior by imposing rules that involve considerable time costs or by educating providers about norms for practice patterns.

Each of these issues is examined in this chapter.

A. Purpose of Prospective Budget

The principal reason for considering the use of prospective budgeting in health policy is its potential as a tool for cost containment. The effectiveness of a prospective budget system in controlling costs and the potential spillover effects onto quality and access to care for medicare beneficiaries, will depend on many factors. Whether any design of a prospective budget can meet these goals will be determined by the nature of the economic, social, and regulatory environment into which it's introduced.

The development of the specific form of prospective budgeting, however, may differ substantially depending upon the expected role that prospective budgeting will have in the broad policy approach to cost containment. If prospective budgeting is intended to be a principal tool for controlling health care expenditures, then the budget system needs to be designed with great care. In addition, the system must include some form of penalties for exceeding the budget and those penalties must be designed to ensure that incentives are directed at the appropriate decisionmakers. On the other hand, prospective budgets could be developed as one component of a broader cost containment strategy. For example, a prospective budget could be used for monitoring the effectiveness of other policies aimed at controlling costs, or as a trigger for the implementation of more stringent controls. In this latter case, there may be less need for a detailed or complex budget setting methodology or for explicit penalties directed at specific market participants.

It is useful, also, to recognize that the approach to developing a prospective budget that will be used to meet a short term, highly focused policy objective will be different from the design of prospective budgeting that is intended to become a permanent policy tool for managing health care expenditures over a fairly long time period. A short-term prospective budgeting policy may be intended as an adjunct to another permanent policy change, particularly when there is concern about whether there will be unanticipated impacts of the permanent policy change.

A prospective budget may be used, for example, with the introduction of a change in physician payment methodology, in order to limit the growth in physician expenditures should there be an unanticipated volume response to the change in payment method. This type of prospective budget policy may not require a high degree of accuracy in setting and updating the budget, although appropriateness and fairness of the budget would be important. Prospective budgeting as a permanent policy strategy, on the other hand, requires greater attention to setting and updating the budget and careful crafting of the monitoring, feedback, and penalty system, if it is to be successful in controlling expenditure growth without undesirable effects.

Whether a short or long term policy, it is important to recognize that (1) the principal goal of the prospective budget is to put incentives in place that will result in control of expenditure growth, either directly or indirectly, without creating undesirable incentives, and (2) the selection of factors that influence the level and updating of the prospective budget may determine the potential effectiveness of the prospective budgeting approach in controlling costs. Consequently, the discussions in this chapter focus on these issues independent of the anticipated permanency of the prospective budget policy.

B. Consideration of Current Institutional Arrangements

The development of a prospective budget approach to cost containment requires attention to the implications of existing provider arrangements. Three issues are of particular importance to understanding the potential feasibility and effectiveness of prospective budgeting that is directed primarily to controlling physician behavior. First, the existence or emergence of physician organizations that are capable of participating in the design, budget determination, and administration of the system will affect the impact of prospective budgeting policy. Second, the underlying incentives facing individual physicians due to existing reimbursement policy, as well as the group incentives created by the prospective budget policy, must be considered. Finally, the incentives faced by patients that affect physicians' ability to control volume and change practice patterns may influence the design and, ultimately, the effectiveness of the policy.

1. Physician Organizations

The design of a prospective budget policy may vary depending upon whether appropriate physician and other organizations either exist or can be expected to evolve in response to the policy. Physician organizations could be given an active role in the process through which prospective budgets are set, monitored, and administered. This is the case in most other countries that use a form of prospective budgeting. In addition, to the extent that the objectives of controlling health care expenditures involves changes in practice patterns to achieve greater efficiency, without sacrificing quality, the role of physician organizations may be a positive one, for several reasons:

- Modern medical practice is complex and technologically involved, making it inappropriate and infeasible for regulatory bodies to direct practice patterns. Physician participation in controlling unnecessary services and inappropriate practices is essential.

- Physicians not only directly provide physician services, but are also responsible for directing the provision of a majority of all other health services used. Health policy changes directed at one specific component of the market may lead to shifts in physicians' practice patterns that produce unanticipated responses (such as increased use of hospitalization), unless physicians are directly involved in the policy development.

- Physician organizations may be more effective in influencing changes in practice patterns, over time, through development of practice guidelines and other standards that are the product of internal organizational consensus, than any external non-physician regulatory body.

- Physician organizations are more likely to be able to define and administer group incentives that interact effectively with individual physician incentives, than are external regulatory bodies, and their recommendations may be regarded as having greater legitimacy than would those of non-physician Government-controlled organizations.

On the other hand, it is useful to recognize that the existence of strong physician organizations doesn't necessarily imply that this positive role will be voluntarily undertaken. There may well be conflicts among well-organized specialty groups attempting to gain strategically within the budgeting process or to obtain special exemptions, for example. The nature of the relationship between the government prospective budgeting body and physician organizations may take a variety of forms that are difficult to anticipate. As is discussed in detail in chapter 3 of this paper, in other countries these relationships may be formal or informal, adversative, or cooperative, with the strength of the bargainers varying on different issues and at different points in time.

At present, in the United States, there are a multiplicity of physicians' organizations. While the American Medical Association (AMA) is a national organization and often has an active role in Federal policy debates, its membership consists of less than half the active physicians in the United States. Membership and active participation in State and county medical societies is higher than for the AMA, although these organizations tend to focus their attention on local health services issues and policy rather than broader reimbursement issues and practice patterns.

With the shift toward more complex technology and increasing specialization in medicine over the past four decades, the medical specialty societies have become the principal membership organization for many U.S. physicians. The specialty societies may work closely with the AMA on national policy issues affecting physicians. However, as the RBRVS fee schedule debates have illustrated, specialty societies may take conflicting positions with the AMA when specialty interests diverge.

Medical associations are not the only potential source of physician participation in prospective budgeting policy. The existing Peer Review Organizations (PROs), at the State level, have a substantial role already in examining practice patterns and medical appropriateness of hospital care for medicare beneficiaries. In addition, these organizations are extending their review activities to ambulatory health care when it is provided to medicare beneficiaries enrolled in HMOs. The PROs are not based upon existing physician associations, but instead were developed with substantial physician involvement specifically to undertake to review process for health care provided to medicare beneficiaries. Thus, they provide an example of the development of an organization, involving physicians, that has a significant role to play in monitoring and assuring quality of care under the medicare program. It is possible that similar organizations, independent of existing medical associations, could evolve in response to implementation of prospective budgeting for the medicare program.

The existence of these national, State, local, and specialty medical societies, as well as the PROs, provides some basis for an assumption that physician organizations may develop to undertake a role in a prospective budgeting policy, as has occurred in other countries. However, there may be less incentive for this to occur in the U.S. under a limited medicare prospective budget policy than in other countries that establish budgets for their entire health care system. Even though the medicare program constitutes about almost 30 percent of physician revenues in the United States, there has been and may continue to be little active participation of physicians to participate in the overall management of the medicare program, either through negotiations on fee levels or on monitoring physician practice patterns and behavior that may be associated with unnecessary volume and expenditures. Consequently, there are at present no existing organizations that would be obvious candidates to undertake negotiation and administrative roles under a medicare prospective budget policy.

2. *The Interaction of Prospective Budgeting with the Physician Payment System*

The impact of a prospective budget on medicare beneficiaries, physicians, program costs, and volume will be very different depending upon the way that individual physicians are paid. If all physicians are salaried, then the prospective budget for physicians' expenditures becomes principally a process of negotiating salaries and working hours. Similarly, a capitation-based physician payment system would focus on negotiating the capitation level, but allow for little risk of overshooting the budget unless there was an unanticipated influx of new beneficiaries into the system. On the other hand, fee-for-service arrangements allow for considerably more complexity in the range of possible physicians' responses to the imposition of a budget cap. Some of these responses could increase the probability that the budget will be exceeded.

The effect of fee-for-service reimbursement on the effectiveness of a prospective budget approach to controlling costs, however, depends on the choice of a mechanism for setting fees. A fee schedule that reduces prices for some services, limits price increases, and restricts balance billing creates a situation where, if physicians want to maintain prior income levels, their only possible response is to increase volume. At the same time, if balance billing is eliminated and fees reduced, this would result in a reduction of out-of-pocket costs to beneficiaries, who would then demand more services at the lower price. The consequence of this dual set of incentives to physicians and beneficiaries would be increased volume and, potentially, physician expenditures that exceed the prospective budget set on an assumption of stable volume and fee schedules. If the penalty to be imposed for exceeding the budget is a reduction in fees in the next year, and this again results in physician volume responses and beneficiaries increased demand due to even lower out-of-pocket costs, then the prospective budget approach could lead to a disequilibrium situation where, eventually physicians might withdraw from the medicare program, creating access problems for beneficiaries, or engage in such significant cost-shifting to other payers that the effect on those other payers' costs becomes severe.

C. Scope of The Prospective Budget

A prospective budget can cover all medicare services, or a portion of those services. As the scope of the budget narrows, the possibility of shifts in services from those covered by the budget to those not covered increases. If substitution is possible between services that are included within the prospective budget and services that are outside the prospective budget, then that substitution will almost certainly occur. There is some evidence that the introduction of PPS for medicare hospital services has shifted some of the expenditures to Part B services not covered by PPS. Shifts in site of care and by type of provider may not be efficient, if they are the result of an externally imposed regulation, and consequently may be more costly than the original mode of care -- resulting in higher costs overall, even though the expenditures for services covered by the budget may appear to have been contained by the policy.

This possibility is important if the ultimate target of the cost containment strategy is physician expenditures. While physician expenditures account for about 30 percent of total medicare expenditures, physicians directly control a much higher proportion of total expenditures and have greater ability to respond to a prospective budget by shifting services to other sites and providers than do other components of the health care market. An important issue for definition of the scope of a prospective budget is the potential impact on all medicare expenditures, rather than simply considering the potential impact on one component of the market.

There are several alternatives that might be considered for defining the scope of a prospective budget approach for medicare:

- a subset of physician services
- physician services, only
- all Part B services
- all medicare services

Each alternative may offer promise for control of physician expenditures, but have different implications for overall medicare expenditures. A general framework for evaluating these alternatives might include a number of factors:

- Impacts on Total Medicare Program Spending. Physicians have substantial control over total use of health services. Health care policy that is targeted only on physicians' services or expenditures may be effective at constraining this component of the medicare spending, but may not achieve the desired total savings because physicians are not offered incentives to consider the full impact of their practice patterns on total expenditures. In addition, physicians may respond to a budget with limited scope by shifting patterns of services ordered from the constrained set to those services that are not included within the budget, resulting in unanticipated expenditure growth in other segments of the medicare program.

- Incentives for Individual Physicians to Change Practice Patterns. A narrower scope of a prospective budget permits incentives to be directed at the specific providers and provider groups that, it is believed, are contributing to the problem being addressed by the prospective budget. Those providers have the ability to directly alter practice patterns and can weigh the rewards and penalties associated with the prospective budget and respond appropriately. The broader the scope of the budget, the more dilute are the direct incentives for a subset of providers who may be contributing disproportionately to the problem of rising volume and expenditures.

- Incentives for Physicians to Organize. A broader scope budget encourages provider groups to organize and to take greater responsibility for defining practice patterns and for monitoring the actions of members, as well as for negotiating with the budgeting authority to set and update the budget targets. A narrower scope may encourage physician organizations that focus more narrowly on a small subset of services or provider interests that do not consider the overall desired outcomes for the medicare program. In general, broader physician organizations lead to more desirable outcomes than narrow organizations. While a minority of physicians may be the major contributors to rising volume and expenditures, a broad prospective budget scope could penalize all physicians if the budget targets are exceeded. This creates incentives for physicians to undertake greater responsibility for actions of their peers. The incentives for physicians to organize, however, may be greater for a narrow budget, since common interests may be addressed to a greater extent by the organization.

- Extent of Cost-Shifting. Medicare prospective budgeting policy also may have impacts on costs to the non-medicare market. A narrowly defined budget could result in cost shifting to the private sector for a limited number of services to recover perceived losses due to lower medicare revenues; if these services were those that are principally used by the medicare population, this shifting would have a negligible effect on the private sector. On the other hand, a prospective budget policy that encompassed the entire medicare program, and that included stringent penalties to providers if the budget was exceeded, could lead to significant cost-shifting to the private sector and to serious access problems for some groups.

  Similarly, a narrower scope than all medicare or all Part B services could result in substantial cost-shifting within the medicare program. If physicians, for example, are facing a substantial penalty for exceeding a physician expenditures budget, they have incentives to use more hospital care to manage patients requiring extensive medical oversight. Attempting to control one segment of medicare costs may lead to rapid increases in other components unless attention is given to monitoring shifts in practice patterns that also lead to shifts in costs within the program.

- Changes in Beneficiary Access to Care and Quality. While the intention of prospective budgeting is to control volume and total expenditures for medicare services, it is intended that these reductions will occur in unnecessary and duplicative services, as well as through increases in efficiency in provision of services. The scope of the prospective budget, however, can affect beneficiaries' access to services and the quality of services available. In general, the broader the scope of prospective budget, the less the effect of beneficiary access to specific services, unless the budget is

> intentionally set at levels that are so low that many providers would lose money by serving them. For a prospective budget of very narrow scope, specific providers of targeted procedures may choose to withdraw from the medicare market. However, for many of these services, medicare accounts for a substantial fraction of these providers' total revenues and, therefore, they may not find it possible to maintain a practice that excludes medicare.

Table 2.1 summarizes these considerations for choosing the scope of a prospective budget policy and indicates the potential impacts of scope of budget on each issue.

TABLE 2.1. Considerations for Defining the Scope of a Prospective Budget

Scope of budget	Incentives					
	Change practice patterns	Physician organizations	Cost-Shifting within medicare	Cost-Shifting non-medicare	Beneficiary access problems	Control total expenditures
All medicare costs	Low	High	Low	High	Unclear	High
All Part B	Low	High	Low/Medium	Medium	Unclear	Medium
All physicians' services	Medium	Medium	Medium	Medium	Medium	Medium
Subset of physicians' services	High	Low/Medium	High	Low	High	Low

D. Options for Geographic Areas for Budgets

Another major issue to be resolved is the appropriate geographic areas for implementation and monitoring purposes under prospective budgeting.[15] There are a number of different geographic areas that could be considered, several of which are currently used for medicare payment purposes. These include:

- Counties: HMOs in the medicare market are paid on the basis on the estimated adjusted average per capita costs (AAPCC) for medicare fee for service beneficiaries who reside in each individual county in the HMO's market area. There are 3,076 counties in the United States.

- Prevailing Charge Localities: Physician fee levels are determined on the basis of prevailing charge areas, which are defined arbitrarily but tend to be statewide or substate areas. There are 240 prevailing charge areas.

- MSA/Rural Areas: Hospitals are paid under the DRG-based PPS according to Metropolitan Statistical Area (MSA) classification, with all nonmetropolitan areas within each State grouped into a rural payment area. There are 266 MSAs and 50 State rural areas in the PPS payment system.

- States: Several States have been permitted to operate outside the medicare hospital PPS because they offered their own, more stringent all-payer system for managing hospital costs. PROs also are generally defined on a state-wide basis. In addition, carrier and intermediary boundaries generally do not cross State borders. There are 50 States, and the District of Columbia.

- Regions: There are nine administrative regions used by HHS to provide regional oversight of Federal programs. While these are not currently used for reimbursement policy, they are one alternative for administration of a medicare prospective budget policy.

- National: A single, national prospective budget could be constructed, with no geographic subdivisions.

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[15] This discussion pertains to the geographic area to which the budget is to be applied, and which will be monitored for compliance. Chapter 4 discusses a second geographic issue; the level at which the budget is determined, e.g., should the budget be based on a national or local standard.

These alternatives represent a range from a single national budget through 50 geographic units to 3,076 geographic units for which prospective budgets would need to be developed and monitored. There are, of course, advantages and disadvantages associated with choosing to go with larger numbers of geographic areas or fewer areas. The issues to be considered in choosing the appropriate geographic area for prospective budget policy include:

- Incentives for Individual Physicians to Change Practice Patterns. The smaller the geographic area and the fewer the affected providers within the area, the greater the incentives for individual providers to respond by changing their practice patterns. The broader the geographic areas, the more diffuse are incentives to individual physicians.

- Incentives for Physicians to Organize. There are existing physicians' organizations at the national, State, and county levels that could form the basis for negotiating and providing an administrative structure for a prospective budget policy. No such organizations exist for most MSA's, rural areas, prevailing charge areas, and HHS Regions, and it is not obvious whether existing organizations within these areas would attempt to merge to create a negotiating organization or whether new organizations would need to be created.

- Incentives for Cost Shifting. The geographic definition of a budget, and how health care expenditures are assigned to geographic areas, raise a number of issues for cost shifting. If expenditures are assigned to the geographic residence of the beneficiary, then providers will have incentives to treat patients from out-of-area more intensively than patients that reside in their own area. Providers in areas in which border crossing is common for health care may have little control over the care-seeking patterns of beneficiaries, but may be subject to penalties, if the budget is exceeded. On the other hand, if expenditures are assigned to the geographic location in which they occur, providers have incentives to refer patients to providers in other budget regions. The smaller the geographic unit chosen for budget purposes, the greater is the likelihood that border crossing will be a problem.

- Consistency with Existing Medicare Payment or Administrative Areas. The principal advantage of choosing a geographic area that is consistent with existing medicare reimbursement areas is that, for these areas, there is already an administrative or data collection capability in place. These include the county, prevailing charge areas, MSA-rural areas, and States.

Table 2.2 summarizes the issues and incentives associated with choosing geographic units for prospective budgeting purposes. In designing a geographic specific prospective budget policy, there are several additional issues that may need to be addressed. It is useful to consider the interaction between the scope of the prospective budget and the choice of a geographic area for budgeting. If the scope of the budget included all physicians' services, for example, there might be an advantage in choosing the prevailing charge area as the geographic unit, since physician fees and expenditures are already maintained at that level. If all medicare program costs are to be included in the budget, on the other hand, then prevailing charge areas would not encompass hospital and Skilled Nursing Facility (SNF) data collection and administrative organizations; the MSA-rural or State level might be more appropriate, if one of the objectives was to minimize the establishment of duplicative data collection and administrative entities.

TABLE 2.2. Considerations for Choosing a Geographic Area for Prospective Budgeting

	Incentives			
Geographic area	Practice pattern shifts	Physicians to organize	Geographic cost shifting	Consistency with HHS payment regions
County	High	County medical societies	High	Yes-HMO
MSA-rural	High	Few existing associations, mergers or new organizations necessary	Medium	Yes-hospitals
Prevailing charge Areas	Medium	Mergers or new organizations necessary	Medium	Yes-physicians
State	Medium/low	State medical Societies, PROs	Low/medium	Yes-carrier/ intermediary/PRO Boundaries
HHS regions	Low	Mergers or new organizations necessary	Low	HHS administrative structure
National	Low	AMA, national specialty societies	None	No

Selection of the level of geographic aggregation for a prospective budget policy may also require consideration of potential financial impact of the policy on individual physicians. Small areas--for example, rural counties--may have only a handful of physicians and a very small number of medicare beneficiaries who use any services in a given year. Random events such as one or two catastrophic illnesses among beneficiaries in these areas could cause the budget target to be exceeded, and physicians in the area to be penalized, as a result.[16] Clearly, if geographic areas as small as the county are used for prospective budgeting, it will be useful to develop mechanisms for determining the extent to which expenditure increases are due to random fluctuations outside of the provider's control.

In choosing the appropriate geographic area for the budget, the nature of the problem being addressed also warrants consideration. Prospective budgeting may, in part, be useful to control volume increases, as well as expenditures. Although it is clear that volume has been increasing in recent years, the geographic patterns of volume increase could, if known, guide the choice of appropriate geographic unit for setting prospective budgets. If volume is increasing consistently across all regions, then a prospective budget at the regional level may be effective. However, if volume increases vary within State to a greater extent than across States, then smaller geographic units for prospective budgets may be desirable. The analysis presented in chapter 5 below provides some information on this issue.

E. Options for Subbudgets Within Geographic Areas

In order to create appropriate incentives and to monitor the performance of selected subgroups within the prospective budget scope, it may be useful to develop an overall budget and then to segment it into components for monitoring purposes. This approach could reduce the tendency for cost shifting and could help to ensure that no unanticipated and disproportionate impacts occur on subgroups of medicare beneficiaries. The use of subbudgets also can focus incentives on the provider that has the greatest decisionmaking power for particular types of services and increase accountability for these decisionmakers. Subbudgets that might be considered include:

- Primary care versus specialty care
- Hospital based versus nonhospital-based physician services
- Overpriced or high growth rate services versus all other services
- Providers with large proportions of low access beneficiaries (e.g. in health manpower shortage areas, high Medicaid population areas) versus providers serving beneficiaries with adequate access.

There is a perception that primary care services tend to be lower cost than specialty services (e.g., Hsiao et al.) and may constitute a relatively small contribution to the rapid increases in volume and expenditures that are the primary focus of a prospective budget policy. Consequently, if specialist services are perceived to be a major problem that can be, in part, addressed by better incentives to primary care physicians, it may be useful to develop separate within-area budgets for these two categories of physician services, in order to monitor the contributions of each to meeting or exceeding the budget target.

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[16] See results of simulations in chapter 6 for a further discussion of this issue.

For similar reasons, it might be valuable to segment the within-area budget into hospital based physician services and ambulatory physician services. The nature of services and the decisionmakers vary by site of service and, consequently, it may be useful to monitor and focus incentives differently for ambulatory and impatient services. It is particularly useful to ascertain the relevant decisionmaker for each budget and subbudget category, as these may be different depending upon scope of the budget and geographic areas. The effectiveness of feedback and monitoring will depend, in large part, on how well the system provides feedback to the appropriate components of the health care system.

Recent work by Mitchell et al., suggests that a significant share of increased expenditures during the fee freeze is attributable to several specific procedures for which volume has grown rapidly. Congress' imposition of price controls and balance billing limits on selected procedures perceived to be "overpriced" reinforces the perception that rising expenditures may be being driven by a minority of physicians and their activities. However, the possibility of rationing and shifting of costs may argue against direct budget focus on these procedures exclusively. It may be of considerable value to overall budget control strategy to develop subbudgets for these specific services in order to determine the contribution that these procedures are making to the ability of all providers in the area to stay within the budget targets and to be able to compare across geographic areas the performance of this component of the budget.

Finally, within some geographic areas, there are significant populations of medicare beneficiaries who face financial and other barriers to access to health care. With the implementation of catastrophic health care coverage under the medicare program, the increasing supply of physicians and their diffusion to areas that previously had shortages, and other factors that may improve access to care, there may be considerable increase in medicare expenditures in these areas that are not due to inappropriate practice patterns or incentives. The Health Resources and Services Administration (HSRA) has defined Health Professions Shortage Areas, by degree of shortage, and also take into account the characteristics of the population in those areas that suggest barriers to access. It may be useful to consider drawing upon the information from the HRSA program to identify areas and populations that have faced access barriers in the past in order to ensure that budget targets are not imposed without consideration for the possibility that, within some budget areas, it would be desirable for increases in access and expenditures to occur. In chapter 4, the operational aspects of this process are explored in more detail.

A principal advantage of developing subbudgets for selected components of the medicare market within geographic areas is that it will permit focussing attention on specific market participants that have disproportionate influence on the ability of the area to remain within the budget targets. If incentives can be similarly focussed, then it would be possible to avoid penalizing those providers who are participating in the process of controlling health care costs and to appropriately penalize those who contribute to continuing increases. The disadvantage of this segmented budget approach, of course, is its potential for complexity. Not only would budgets need to be determined for the overall geographic unit, but a number of within-area budgets might be required each year.

F. Options for Feedback

Prospective budgeting is intended to control rising health expenditures. To achieve that objective, the budget target must be combined with mechanisms that feed back into the health delivery system in ways that create incentives to change behavior. These feedback mechanisms may be direct financial incentives--positive or negative--or may be administrative or persuasive in nature. There is considerable evidence from the HMO experience that some types of financial incentives are effective in changing physicians' patterns of practice. The PPS experience suggests that some types of administrative rules may also be effective in changing practice patterns. The selection of feedback mechanisms will depend upon 1) the scope and definition of the prospective budget to be used; and 2) the anticipated changes in behavior that are desired. The range of feed back options that may be considered include:

- Withholding of a portion of the medicare reimbursements earned by physicians that are subsequently distributed to physicians only if the area is within the budget target.

- Bonuses or higher fee increases to physicians in areas that are successful in remaining within the budget target.

- Reductions in fees or allowable fee increases for physicians in areas that fail to meet budget targets.

- Imposition of mandatory assignment in areas that exceed budget targets, in order to protect beneficiaries when fees are constrained in response to the failure to meet budget targets.

- Imposition of administrative rules for second opinion, prior authorization for selected procedures, extensive utilization review with retroactive disapproval of unnecessary services without permitting physicians to collect from beneficiaries, greater paperwork, etc. for physicians in areas where the budget target is exceeded for one or more years.

The choices among these alternative feedback options may differ depending upon the geographic unit, the scope of the prospective budget, the subbudget monitoring to be used, and the underlying objectives of the prospective budget system. While cost containment may be the ultimate objective, it may be possible that the initial budget system would be put in place without strong, direct feedback mechanisms and with some tolerance for minor deviations from the budget. However, this slower approach to prospective budget policy would need to be coupled with clear indications of the feedback mechanisms that would be triggered if the budget targets were exceeded consistently for a specified period or were exceeded by a specified amount above the target. This phased-in approach to feedback would permit finetuning of the system (e.g., examining the factors that are associated with exceeding budget targets to identify legitimate increases) and would also provide incentives for physicians to organize to participate in the prospective budget process, to negotiate legitimate modifications to the budget, and perhaps to undertake a role in administering the budget and the feedback mechanism.

On the other hand, the introduction of a prospective budget that includes in its initial design clear rewards and penalties could encourage more rapid changes in behavioral patterns and greater response to the system. The particular approach, again, would need to be selected based on the overall design and objectives for the prospective budget policy chosen. Greater details on these issues and consideration of alternative approaches and their operational characteristics are provided below in chapter 4.

DISCUSSION

In this chapter, the basics of prospective budgeting and of some of the issues that warrant consideration in the design of a prospective budget policy for the medicare program have been discussed. These design issues, and the potential implications of alternative choices for those design issues, provide the foundation for examining in chapter 3 the international experience with prospective budgeting as a cost containment tool and for considering the detailed operational decisions that are addressed in chapter 4 of this paper.

CHAPTER 3. THE INTERNATIONAL EXPERIENCE

Although there are many differences across countries, prospective budgeting has been used by a number of countries, including Germany, England, Canada, and the Netherlands, to curb rising costs.[17] In this chapter, cost containment policies in Canada and West Germany are described. These countries have used forms of prospective budgeting aimed specifically at physician and other ambulatory services expenditures. Also, many developed countries use budgeting focused on the hospital services. We focus our examination of other health systems on the design issues raised in chapter 2:

- Institutional arrangements, including physician organizations and incentives to patients
- Scope of the prospective budget
- Geographic areas included in the budget
- Subbudgets within areas for monitoring
- Options for feedback

INTERNATIONAL PERSPECTIVE ON HEALTH CARE EXPENDITURES

In most developed countries, health care expenditures rose rapidly during the 1960s and 1970s.[18] This growth was both in terms of absolute amounts and relative to gross domestic product (GDP). However, in the 1980s, many of the developed European countries have achieved stability in health expenditures as a share of GDP. In 1986, the 23 Organization of Economic Cooperation and Development (OECD) country average[19] share of GDP was 7.3 percent; ranging from Greece's 3.9 percent to the United States' 11.1 percent. This OECD average has been stable since 1983. From 1970 to 1980 the country average rose from 5.4 percent to 7.1 percent. Table 3.1 shows the growth in health care expenditures in developed countries over the period from 1965 to 1986.

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[17] In all cases, prospective budgeting is used as a part of the overall cost containment strategy.

[18] For more detail, see Schieber, George and Jean-Pierre Poullier, *Trends in International Health Care Spending.* Health Affairs, fall 1987.

[19] Turkey was excluded because data was not available for all years. See table 3.1 for source.

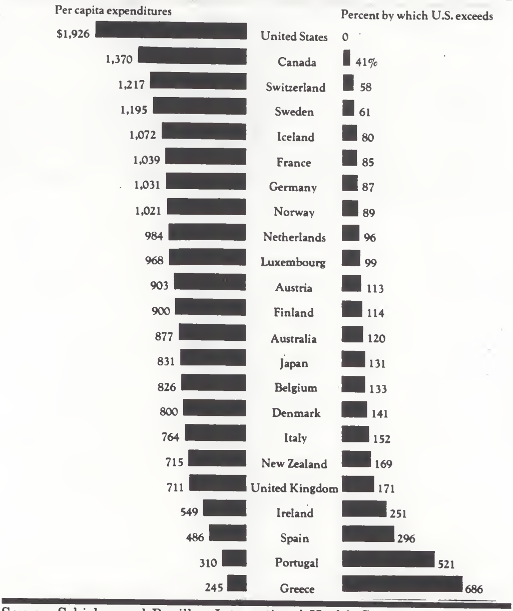
TABLE 3.1. Total Health Expenditures As A Percentage of Gross Domestic Product, 1960-1986

	1960	1970	1980	1983	1984	1985	1986
Australia	4.6%	5.0%	6.6%	6.9%	6.9%	6.8%	6.8%
Austria	4.6	5.4	7.9	7.9	8.0	8.2	8.0
Belgium	3.4	4.0	6.6	7.2	7.2	7.2	7.1
Canada	5.5	7.2	7.4	8.6	8.5	8.4	8.5
Denmark	3.6	6.1	6.8	6.6	6.3	6.1	6.1
Finland	4.2	5.6	6.3	6.6	6.8	7.3	7.5
France	4.2	5.6	7.4	8.1	8.4	8.4	8.5
Germany	4.7	5.5	7.9	8.0	8.1	8.2	8.1
Greece	2.9	4.0	4.2	4.2	4.0	4.2	3.9
Iceland	5.9	8.7	6.9	8.2	7.3	7.8	7.5
Ireland	4.0	5.6	8.5	8.0	8.0	8.0	7.9
Italy	3.3	4.8	6.8	6.7	6.6	6.7	6.7
Japan	3.0	4.6	6.6	6.9	6.7	6.6	6.7
Luxembourg	-	3.8	6.1	6.9	6.6	6.7	6.9
Netherlands	3.9	6.0	8.2	8.6	8.3	8.3	8.3
New Zealand	4.4	5.1	7.2	6.3	-	-	6.9
Norway	3.3	5.0	6.6	6.8	6.5	6.4	6.8
Portugal	-	-	5.9	5.4	5.6	5.6	5.6
Spain	2.3	4.1	5.9	6.3	6.0	6.0	6.0
Sweden	4.7	7.2	9.5	9.6	9.5	9.4	9.1
Switzerland	3.3	5.2	7.2	7.8	7.7	7.9	8.0
United Kingdom	3.9	4.5	5.8	6.2	6.2	6.1	6.2
United States	5.2	7.4	9.2	10.7	10.5	10.7	11.1
Mean	4.1%	5.4%	7.1%	7.3%	7.3	7.3	7.3%

Source: Scheiber, G. J., and J. P. Poullier. *Trends in International Health Care Spending*. Health Affairs, fall 1988.

In the United States, despite recent cost-containment efforts, health care expenditures rose faster than the economy in general. Health expenditures increased from 9.2 percent of GDP in 1980 to 11.1 percent in 1985. In 1986, U.S. per capita health spending was $1,926, -- $900 more per person per year than in West Germany (see Chart 3.1). Measured as both a percent of GDP and on a per capita basis, U.S. spending on health services tops the list of developed countries. The U.S., however, had the lowest percentage of public health expenditures relative to total health expenditures (41.1 percent) among all the developed countries. The public share of health expenditures in OECD countries averaged 78.1 percent, ranging from over 90 percent of total health expenditures in England, Sweden, Norway, and Greece to less than 70 percent in Austria and Switzerland.

CHART 3.1. Per Capita Health Spending, 1986



Source: Schieber and Pouiller. International Health Spending

CANADA

A. Organization of Health Care

Canada has a health insurance system, administered by its provincial governments, that covers all legal residents of Canada for hospital, medical, and extended care services with no deductibles and no copayment or "extra-billing." All residents receive health insurance coverage and pay for it through taxes. Health care providers are reimbursed by the governments using rates determined by negotiations between providers and provincial governments. The governments raise revenues through a combination of national grants and local taxes. Each provincial government has the authority to decide the financial mechanism, payments for providers, expenditures and additional benefits, cost controls, and provisions for adequate supply of health care. However, the Hospital Insurance and Diagnostic Services Act of 1957 and the Medical Care Act of 1966 which are combined and amended by the Canadian Health Act of 1984, provide the framework for Canada's Health Insurance system. For each province to receive federal funding, it must satisfy the following conditions.

- Universal Coverage
- Portable benefits
- Comprehensive benefits
- No out-of-pocket expenses
- Nonprofit public administration of program

About 25 to 30 percent of doctors are paid on a salary basis at hospitals and clinics, and the rest are private practitioners participating in the public insurance system. Since physicians must choose to provide care strictly within the public system or depend upon the few patients outside the national health care system for their income, most doctors enter the public system.

Although no private insurance is allowed to compete with the public system, hospitals and clinics are privately owned and operated. Approximately 90 to 95 percent of the allowable costs incurred by hospitals and clinics is reimbursed by the government, and public donations make up the rest.

Overall, only 75 percent of total health care costs is covered by public expenditures since dental care and drugs are not covered.[20] Private insurance is available for prescription drugs.

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[20] Coverage varies among provinces. Some provinces such as Quebec and Ontario provide prescription drugs for people over 65 and welfare recipients.

B. Health Financing

Canada's total health expenditures as a percentage of GDP have risen from 5.5 percent in 1960 to 8.6 percent in 1985. However, with health care costs at 8.4 percent of GDP in 1982, Canada implemented a number of cost containment initiatives that have resulted in a slowing of the rate of increase in health expenditures between 1982 and 1985. Public health expenditures have been stable since 1982 at around 6.4 to 6.6 percent of GDP. The per capita total health expenditure was $1,282 (in U.S. dollars) in 1985; this represents about 73 percent of the U.S. per capita expenditure.

Each province has discretion in administering and financing its share of the plan. It also defines the "medically necessary" services and may increase the medical coverage for its residents. The methods for paying the doctors and hospitals are also decided at the provincial level. Since the services are paid for by local taxation and Federal grants, provinces are at risk for unexpected cost increases and will benefit if costs are lower than prospectively budgeted dollar amounts. Although three provinces collect insurance premiums for the health plan, residents will receive care even if they fail to pay the premium.

Initially, 50 percent of health care expenditures were funded by the national government as an incentive for the provinces and territories to provide comprehensive health care satisfying the national mandate. For fiscal years prior to April 1, 1977, the Federal Government used cost-shares determined by an open-ended formula which was based on the per capita national and provincial costs. Since 1977, the funding formula has changed, and the actual Federal contributions vary among provinces. In 1984, conditions for receiving Federal grants or funds and the penalties for not satisfying the conditions were made explicit.

There were strong incentives for both the Federal and provincial governments to change the funding structure. Faced with rising concern over the ability of the government to control costs, difficult program administration, and large variations across provinces, the Federal Government decided that giving more flexibility to the provincial governments would help reduce costs by provinces adopting cost saving alternatives and developing custom programs to meet their particular needs. The provinces wanted more flexibility in financing arrangements to allocate funds based on their needs and priorities.

As a result of an agreement between the Federal and provincial governments, a law was passed on March 31, 1977, and this has resulted in prearranged Federal block grants for health care programs. These grants include cash payments and the transfer of tax points from the Federal income tax rate to allow provinces to raise their own tax rate. The resulting revenue transfers from the change in tax rates made up approximately 50 percent of all federal transfers. The contributions during the 1975-76 base year and changes in Gross National Product (GNP) were used to determine the total Federal contribution. Since 1982, average per capita contributions[21] multiplied by each province's population have determined the total federal cash transfers.

Two incentives were removed as a consequence of the financing agreement. First, since block grants are no longer tied to costs, provinces had no incentives to concentrate spending on high cost programs to increase the federal contribution. Second, provinces can allow their expenditures to grow at a faster rate than GNP growth rate, but they can not rely on Federal Government for any additional aid.

C. Details of Prospective Budgeting in Canada

The administration of the Canadian system of health care is decentralized. Therefore, it is necessary to describe the details of prospective budgeting in Canada at the province-specific level. The following sections illustrate the types of arrangements in the provinces without being comprehensive.

1. Institutional Arrangements

a. The role of physician organizations. The existing physician organizations in Canada play an important role in the operation of the national health care system. The Canadian Medical Association (CMA) has the membership of approximately 80 percent of physicians in Canada. Membership in CMA is automatic for all the members of provincial medical associations except in Quebec where membership is on a strictly voluntary basis. CMA provides information and data on human and financial resources and a variety of financial and educational services to its members and provincial medical associations. It also serves a coordinating function for provincial medical associations at the national level. While the Canadian Medical Association is substantially involved in the annual determination of the total health care budget at the national level, it is the provincial medical associations that determine the fee levels through negotiation with the provincial governments and that allocate the total provincial budget among specialties.[22]

In Ontario, the Ontario Medical Association (OMA) negotiates with the Ontario government on fee levels and administrative costs and is also responsible for allocating funds within specialty groups.[23] Four OMA representatives and four government representatives are appointed to the Joint Committee of Physician Compensation, with a neutral chair. When stalemates occur, the chair acts as a fact finder, with support from both sides. Since 1973, the Joint Committee on Physician Compensation has negotiated the annual global fee increase permitted in Ontario, with these increases subject to approval by the government and by the OMA's elected council.

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[21] The average per capita contributions are based on the 1975-76 base year and are indexed by the average GNP growth rate for preceding 3 years.

[22] AMA, *International Lessons, 1984, p. 64-65.*

[23] The allocation of funds is conducted by adjusting fee schedules among various groups. From 1974 to 1983, a fee-for-income allocation system, which (continued...)

It is worth noting that, despite the cooperation between the OMA and the government, disagreements do occur. A major example of this was the doctors' strike in 1986, when extra billing was eliminated. When the extra billing provision was implemented, some physicians left the system, and OMA estimates that up to 10 percent have resigned from the OMA over this issue.

In Quebec, the Quebec Medical Association (QMA), three other medical associations,[24] and the Professional Corporation of Physicians of Quebec represent physicians. QMA works closely with the provincial government to set and monitor overall annual expenditure targets for physicians' services, fees, and physician income levels. Target incomes and target quarterly and annual billing for General Practitioners (GPs) are negotiated annually for each quarter of the year. A fee schedule for covered services is negotiated, with the approved schedule in effect for up to 3 years, subject to renegotiation if economic indicators change.

b. *Incentives to patients and physicians.* In an attempt to provide equal care to all citizens, physicians are not allowed "extra-billing" for covered services. The fees they collect from the government are the payment in full for the services rendered.

Since patients in the Canadian system incur no out-of-pocket costs for physician services and most ambulatory care physicians are paid on a fee-for-service basis,[25] volume control is a consideration that has been addressed through administrative rules. The responsibility for controlling volume is placed upon the physicians, rather than upon patients through cost-sharing. Patients are discouraged from self-referral, and specialists require that patients

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[23](...continued)
allowed average increases in fees in accordance with differences in incomes of various groups, was used. Since then, a fee-for-service allocation system, which seeks to establish equitable fees among services, has been used.

[24] These are the Federation of General Practitioners of Quebec (FMOQ), the Federation of Specialists in Quebec (FMSQ), and the Federation of Residents and Interns of Quebec (FMRIQ). FMRIQ bargains for residents and interns.

[25] The actual method of payment varies among provinces. In some provinces, community health centers are funded through capitation or salary payments. Most hospital-based doctors are salaried employees of the hospitals.

have been seen by a general practitioner prior to being seen for a specialty consult. The principal mechanism for control of volume, however, is through the incentives provided to physicians that limit their annual income and billings (as in Quebec) and/or through the anticipation that higher volume in this year will result in lower fees per unit of service in succeeding years. In addition, there is considerable monitoring of individual physician's practices to identify excessive volume, with associated penalties. Surgical volume is controlled by the strict limits on the number and growth in hospital beds in Canada.

In Ontario, the fees are developed by each specialty group with no mandated approach, and consequently, while fees may be consistent within specialty, they are not necessarily consistent across specialties for similar procedures. The OMA and specialty groups have also agreed to periodic reduction in fees for procedures that have involved rapid technological change and are, therefore, perceived as overpriced and overutilized over some period of time.

The principal mechanism used to contain costs in Ontario, however, is the global fee increase which is negotiated, taking into account volume growth, to the desired level of total expenditures. Hence, there are no strong individual incentives in the fee schedules to control volume of service. However, monitoring individual physician's practice pattern, including the number of procedures performed, provides incentives to practice within the norm.

In Quebec, quarterly billings, average annual income, and, in some cases, allowed number of procedures for different physician groups are targeted. Thus the payment system is a major component in controlling volume and costs at the individual level. Key aspects of physician payment in Quebec include:

- No specialty differential for services provided by both GP's and specialists.

- Annual income and expenditure ceilings are negotiated, with actual disbursement carried out by the physician bargaining groups, the Federation des medicins omnipracticiens du Quebec (FMOQ, the Federation of General Practitioners of Quebec) and the Federation of Specialists in Quebec (FMSQ). Although membership is voluntary, agreements between associations and the Minister of Social Affairs are binding on all physicians (even nonmembers).

- Targets are set with a 20 percent differential in income between general practitioners and specialists, and there continues to be income differentials among various specialties.

2. *Scope of the Budget*

Hospitals and ambulatory care services are treated separately for budgeting purposes. In general, hospitals are under a global budgeting system. Prospective budgeting in the ambulatory sector consists of controls on fees, volume, and/or expenditures, and controls for both sectors vary by Province. Where prospective budgeting is applied, it covers all services in the provinces (with minor exceptions). Incentives to shift services may take place between provinces or between the hospital and ambulatory service sectors within a province depending on the degree of control imposed.

3. *Monitoring and Penalties*

Within each province in Canada, an administration for health insurance which processes almost all the billings for the province effectively monitors the health insurance system. Since each individual bill is maintained in a complete data base, individual as well as community tabulations on practice, charges, and deviations from norms can be made. These data are used for monitoring the system for abuse by participating doctors.[26]

The Ontario Health Insurance Plan (OHIP) is a good example of using complete medical practice data to monitor physician practices. In addition to a random survey of beneficiaries every month to verify the submitted claims, OHIP checks for the doctors who are far above the norm in number of procedures performed. If any concern about an individual doctor arises, his or her practice profile can be compiled for review. These reports are then sent to the Medical Review Committee (MRC) of the College of Physicians and Surgeons of Ontario for investigation and report. Since the process has the support of both OHIP and the OMA, it bypasses the problems associated with one-sided reviews. If a problem arises about a doctor, the committee's investigator interviews and reviews the doctor's records. Then the doctor has a chance to rebut the findings, after which the full committee makes recommendations to either OHIP or the College of Physicians and Surgeons. One form of penalty that the committee can recommend is to have the payments reduced by a certain percentage for a set of services. Another is to recommend deficient physicians for remedial courses. Around 70 doctors are investigated in this manner per year.[27]

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[26] Glaser, William A. *The Doctor under National Health Insurance, Foreign Lessons for the U.S.A.*, A report for the Social Security Administration, 1977. p. XI-58 - XI-59.

[27] Ibid.

In Quebec, every health insurance member receives a charge card which is used when receiving care. Physicians use the charge card billing machines to charge their services--almost identical to a credit card system.[28] Physicians must enter the diagnosis and treatment codes. Once the claims are processed into a data bank, computers study the claims by checking the following:[29]

- match between the requested fee and the provided service
- performance of the service
- frequency and medial necessity of the rendered service

On a weekly basis, a claims administrator conducts a written survey of a random sample of beneficiaries to verify that charged services for them are actually performed. Any negative response is followed up with a telephone interview, and the results are sent to the physician. If the discrepancy cannot be resolved, then a survey is conducted for all of the physician's patients.

Quebec also monitors physician practice patterns by generating practice profiles for each doctor. If any concern arises, these results are evaluated by a peer review committee. If the peer review committee finds that a certain pattern of practice is unwarranted, then previous 3 years of claims are examined for questionable practices. Physician must either refund to the program the amount paid on the questionable practices or have his or her fees reduced.

As previously mentioned, two physician organizations in Quebec negotiate with the provincial government on the ceilings on quarterly billings and annual average income of physicians. These ceilings have become effective in containing costs by imposing severe penalties for exceeding the ceilings. The negotiated ceiling on billings per general practitioner was $39,392 per quarter with an annual cap of $157,568 for 1987-1988. If billing levels in a given quarter exceed the ceiling, then the physician's fees are reduced by 75 percent from the negotiated rate for the remaining period of the quarter. About 22 percent of the physicians billed above their limits during 1986-1987.

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[28] Approximately 40 percent of Canada's claims are processed electronically; in the U.S., 31 percent of Part B claims are processed using electronic transmission. The administrative cost for the Canadian system is 2.7 percent compared to 2.9 percent for Part B disbursements.

[29] Leader, Shelah, Jack Guildroy, Stephanie Kennan, Eugene Lehrmann, and Eva Skiller. *The Canadian Health Care system: A Special report on Quebec and Ontario*. American Association of Retired Persons, July 1988. p. 10-11.

In addition, to control volume of specialists, ceilings on the number of procedures performed are established. For example, radiologists are paid at the full rate for the first 25,000 procedures they perform, but receive only 25 percent of the full rate for all procedures above 25,000.

Finally, target average incomes are negotiated for general practitioners and specialists. In 1987-88, target incomes for generalists and specialists were set at $115,503 and $145,734, respectively, with projected income of $120,297 and $151,782 for 1988-1989. The setting and monitoring of target incomes reduces the financial incentive to physicians to generate excessive volume in their own practices by limiting the income that they can derive from that volume. Exceeding the ceiling on average annual income will result in the reduction of following year's fee increases. Monitoring the billing on a quarterly basis in conjunction with the annual income caps prevents year end dislocations as physicians respond to the knowledge that any additional work that they do will add no additional revenues to their annual income.

4. Geographic Areas Included in the Prospective Budget

While an overall Canadian prospective budget for all covered medical services is prepared, the detailed budgets for physician expenditures are prepared at the province level. Since Canada is a country with frontier areas where medical care is difficult to provide due to low population density and most physicians' reluctance to settle in remote areas, some provisions are made to exempt these areas from the strict budget constraints imposed on physicians. Quebec, for example, does not impose controls on expenditures for hospital services rendered in remote areas or restrictions on income and billings by anesthesiologists and obstetricians.

D. Discussion

The Canadian system is particularly informative for the United States because it includes both a federal component, which sets the basic terms and standards for the national health care system, and considerable delegation of responsibility to provincial governments for the details, implementation, and monitoring of its national health care system. The most important points to emerge for the review of the Canadian system include:

- Physician organizations play an essential role in the system, negotiating fee levels and target income levels, interacting with specialty and general practice physicians, and participating in disbursing revenues and monitoring performance under the plan. While the role varies from province to province, it is clear that physician organizations are critical to the functioning of the system.

- Incentives to limit volume growth of physician services are placed firmly on the physician community. Patients face no cost-sharing, but are not free to seek specialty care without a general practice referral. Thus, general practitioners control specialty volume at the front line. All physicians face some economic incentives to control volume growth, either because there are income caps or because excessive volume results in lower fees for services above the preestablished expenditure levels or because higher volume and expenditures in one period will lead to lower fee increases in the next period.

- Detailed data on a timely basis are useful for monitoring a system with expenditure targets. In order to provide feedback to physicians on their individual performance and on the provincial expenditures levels on a quarterly basis, it is necessary that data be available on a continuous basis with minimal lag time.
- A distinction between primary care and specialist care is made in Canada for budgeting, payment levels, and monitoring services.
- Special provisions are made for exempting or modifying the imposition of strict expenditure targets and penalties in geographic areas that have shortages of health care services available.
- While extra billing was permitted for a number of years, the Canadian Federal Government eliminated this practice for all of Canada in 1986.
- Control of hospital based care occurs through strict limits on the number and growth in hospital beds and through employment of hospital-based specialists on a salaried basis.

WEST GERMANY

A. Organization of Health Care

The West German health care system is nongovernmental, decentralized and pluralistic, consisting of statutory, voluntary and private institutions working side by side in both delivery and financing of a social health insurance system with minimal government influence. The government ministries at the Federal and State levels have a limited, indirect effect on the health care system. Ministries have the supervisory role over the social health insurance system and semi-public associations of physicians and health insurance funds. The ministries can issue guidelines and educational directives, enact laws, and ratify fee structures.[30] While the Federal Government has attempted to increase its influence in the health care system, these attempts have been met with strong resistance from various physician organizations.

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[30] Bergmann-Krauss, Barbara. *Qualification and Professionalization in the Health-Care Professions. Political Values and Health Care: The German Experience*, edited by Donald W. Light and Alexander Schuller. Cambridge, Mass.: The MIT Press, 1986. p. 397-398.

The financing system involves independent sickness funds (health insurance fund)[31] and private insurance programs. Sickness funds are the dominant financing mechanism for providing health care and cover 93 percent of the population. The private insurance companies insure the other 7 percent.[32]

There are various ways individuals are covered under the social health insurance system, which is financed completely by payroll taxes. Membership in a sickness fund is compulsory for anyone who is entering, currently in, or retired from the work force. Every employee below a specific level of income must join a sickness fund. If the income of a non-manual worker exceeds a certain amount he or she has an option to join a sickness fund voluntarily or to purchase private insurance. Both the employee and the employer contribute equal amounts to finance the health insurance, totaling approximately 11.3 percent of gross income. For those workers selecting the option to join private health insurance, the employer pays a share of the private insurance premium. Retired persons with pensions are covered under the plan they belonged to during their productive years if they belonged to the plan for at least half of their working careers. Other retired persons who have privately insured pensions or voluntarily join other legal insurance plans receive a grant of up to 11 percent of their pension for obtaining health insurance.[33]

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[31] The first health insurance system was created by Bismark in 1884. Currently, there are approximately 1300 statutory sickness funds, which are chartered and regulated by the government and divided into two categories: six compulsory funds and two substitute funds or Ersatzkassen. Several types of compulsory funds are organized according to either a particular region or an individual's trade. Local funds are geographically defined and insure about 50 percent of the population (mostly blue-collar workers) and act as a safety net for anyone who is not interested in other funds. Other compulsory funds are factory funds, agricultural workers' funds, national funds for craftsmen and tradesmen, miners' funds, and mariners' funds. Two groups of substitute funds, which were created in this century to supplement the compulsory funds, insure white-collar (7 large funds insure 17 million people) and blue-collar workers (8 funds insure 430,000 people) and enjoy much higher status in that the insured has the exclusive right to control the funds while compulsory funds are controlled jointly by the insured and the employers.

[32] Bergmann-Krass, 1986, p. 396.

[33] Mews, Rudi. Social Security for All, Social Services in the Federal Republic of Germany. Federal Republic of Germany Press and Information Office: Bonn, May 1980.

Although there are different sickness funds with different benefits those plans generally cover:[34]

- All dependents are covered without additional charges
- Ambulatory treatment by physicians and dentists
- Unlimited inpatient treatment in a hospital
- Sickness pay
- Pharmaceutical services, spectacles, prosthetic devices, orthopedic equipment
- Preventive treatment at health spas
- Certain specified examinations for early diagnosis: checkups for children up to age 4, women after 30, and men after 45
- Medical attention for women in childbearing
- Maternity payments corresponding to sickness benefits
- Household help or substitute worker in case housewife is sick
- Up to 5 days for taking care of child sickness

In addition, one can buy supplementary private insurance to obtain additional benefits not covered by the basic plan, such as private room privileges, or join a sickness fund that offers a more comprehensive benefit package. Patients generally have the freedom to choose their primary care doctors. Patients have the choice of self-referral to general practitioners, specialists, or hospital emergency care.

As in most European countries, the hospital sector and ambulatory medicine are separated in the German health care system. Except department directors who are allowed to see patients on an outpatient basis, hospital-based doctors cannot provide ambulatory care even if it is for follow-up care, and most office-based doctors do not have staff privileges at hospitals. In general, hospital-based doctors (just under 50 percent of all doctors) are salaried and doctors in the ambulatory care sector are paid by the physician organizations, such as Sickness Fund Physicians Organizations (SFPA), on a fee-for-services basis. Any office-based doctor who wishes to participate in the public health insurance system must join the SFPA. However, fees are subject to utilization levels since the total budget available to all ambulatory sector physicians is negotiated by the SFPA. All physicians must also join physicians' chambers or Arztekammern, which are semi-public mandatory physicians' professional associations. Independent professional associations or freie Verbande, which actively recruit physicians, serve to influence public policy (Ridder, 1986).

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[34] Mews, *Social Security for All*, p. 12.

Hospitals are paid on a per diem basis at the rates negotiated with individual sickness funds. Governmental attempts to put hospitals under global budgets have not been successful due to public support generated by hospital-based doctors. Approximately 12.4 percent of the hospitals are privately owned, and the total number of hospitals has been declining.

B. Details of Prospective Budgeting in West Germany

West Germany's health care system is private sector based, with privately managed sickness funds, receiving revenues through payroll taxes. The government's role in prospective budgeting is limited to providing guidelines that then result in negotiations between payers and provider organizations. Prospective budgeting is limited to ambulatory services, with hospitals exempted but subject to other types of cost control policies.

1. *Institutional Arrangements*

a. The role of physician organizations. For the first 50 years after the health insurance laws were created by Bismark in 1884, sickness funds dealt with individual doctors. In the 1920s, physicians organized a political organization to create a legal standing physician organization that can represent physicians in negotiations with the sickness funds. After two strikes in 1925 and 1931, Sickness Fund Physicians Associations were created in 1931. There are now 18 regional (not by State boundaries) associations that represent around 65,000 physicians. Most ambulatory care physicians in West Germany belong to the SFPA since membership in these associations is mandatory for a physician wishing to practice medicine within the health insurance system.

A Federal Sickness Fund Physicians Association (FSFPA) represents the regional associations at the national level. The FSFPA interacts with national associations of sickness funds to specify guidelines for regional agreements, and some regional contracts with large sickness funds that cover more than one region are negotiated by FSFPA. It also conducts research on the German health care system and takes an active role in containing costs through the National Health Commission (NHC) or Concerted Action in Health Care.[35]

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[35] NHC is an advisory body created by the Cost Containment Act of 1977 to provide a forum for all the interested parties to work out their differences and consists of representatives of physicians, sickness funds, private insurers, dentists, pharmaceutical manufacturer, and all private and public organizations (continued...)

The physician organizations in West Germany's regions play a major role in the prospective budgeting process. The National Health Commission issues guidelines for negotiations and has the power to declare an expenditure ceiling. As noted, the FSFPA and the national associations of insurance funds then negotiate the general guidelines for regional agreements. It is the regional SFPAs and the insurance funds within the area, however, that negotiate the actual budgets for ambulatory care provided to enrollees of the plans. The budget is based on a negotiated per enrollee payment (capitation) amount for a specified period. The overall budget is divided into subbudgets for direct physician services, dental services, other services such as prescription drugs, and lab services.

b. Patient and physician incentives. Individuals face some cost sharing provisions for prescription medicine and dental care (dental technical services, 40 percent; prescribed drugs, 20 percent; and prescription of glasses, 20 percent). Exemptions to cost sharing provisions are made for children, pregnant women, low income persons with over three months of drug use requirement, and war injured persons. Initially, cost sharing provisions were insignificant; then, copayment levels were increased to the current levels in 1982, as a consequence of rapidly rising costs during the late 1970s. These cost sharing provisions seem to have had an impact on the volume of dental care.

Although there are some cost sharing provisions in other services, generally, no cost sharing provisions exist for physician services and hospital care. Since patients do not have to pay for physician and hospital services, there is no restraint from the beneficiaries to reduce the volume of care.[36] Hospital based physicians are salaried and, consequently, do not face incentives to increase volume of services. Ambulatory care physicians receive payment for services on a fee-for-service basis and, therefore, do face incentives to increase volume in order to generate additional revenues and higher incomes. These incentives, however, are countered by the payment and monitoring features of the West German system. These methods are described below, in the section on "monitoring and feedback."

It should be noted that within a region, the SFPAs negotiate budgets and payment scales separately with each insurance group in the region. Since each payer group can negotiate different actual fees levels, physicians within a region may receive different fees for a procedure depending on the particular

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[35](...continued)
affected by the ceiling on health care expenditures, such as hospitals, employers, labor unions, trade unions, and Federal, State, and local governments. Since the recommendations of NHC is not binding, its effectiveness is in dispute.

[36] Actually the opportunity cost of receiving care may be greater than zero, and this may have a small impact on controlling volume.

insurance fund covering their patients.[37] It has been shown that dentists and doctors have special preferences for patients from higher paying sickness funds. Many studies have substantiated that patients with different coverage have different average waiting times in the doctor's office, and that the average waiting time is positively correlated with the corresponding fee-level. For example, local sickness funds (Ortskranken-kassen) command a lower fee-level than substitute sickness funds (Ersatzkassen), and the highest fees are received from patients covered by private insurers. Investigations indicate that the average waiting time of members of a local sickness fund was 20 percent longer than those of substitute funds, and 70 percent longer than the waiting time of patients covered by private health insurers.[38]

2. *Scope of the Prospective Budget*

Prospective budgeting in West Germany covers ambulatory care. Separate prospective subbudgets as a percentage of total budget are set for each ambulatory service category--physicians, dentists, and other services such as prescription drugs and lab services--after a negotiating process with the national and state level organizations that represent the providers.[39] The prospective budget operates as a ceiling and exceeding that ceiling results in a reduction in the price paid per unit of service or good provided. Because of the role of physicians in prescribing services and goods, physicians' prescribing patterns are also taken into account when total expenditures for non-physician services are being addressed and monitored.

3. *Monitoring and Feedback*

Monitoring and feedback takes place at both the subbudget (physician, dentist, laboratory etc.) and the individual physician level. At the subbudget level, the monitoring and feedback are integrated into the payment system. Each procedure is assigned a "point" value (similar to a relative value scale) through negotiation at the national level. To determine a payment amount for a procedure a conversion factor is used. The conversion factor is retroactively determined for each quarter to ensure that the budget is not exceeded. This approach weakens the incentive to increase volume to compensate for lost revenues because the actual payment level is not known in advance. It also has the advantage of being timely, as the monitoring is done quarterly.

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[37] In 1987, the substitute funds dropped their separate fee schedule and adopted the same point and capitation system as the compulsory funds. A different fee may be received from privately insured patients.

[38] Schulenburg, J., and Matthias Graf. *Report from Germany: Current Conditions and Controversies in the Health Care System*, Journal of Health Politics, Policy and Law, v. 8, no. 2, summer 1983. p. 335-336.

[39] Currently, quotas for lab services and physicians' basic services are 10 percent and 50 percent of total volume, respectively.

The monitoring and feedback system does not entirely remove incentives for increased volume. There may be an incentive to increase the units or intensity of services to compensate for low conversion factors in previous quarters. Therefore, the West German system provides for monitoring of individual physician practice patterns. The SFPAs conduct the monitoring of physicians under the direction of a health system monitoring committee. The role of the committee is to monitor and provide feedback and penalties when warranted.

In the process of economic monitoring, physicians with same training, office staff, equipment, and patient-mix are compared on various cost measures. Physician's activities for individual patients are categorized into various services and their respective points are compiled in each category. Then averages for all the physician's patients are calculated for each category. These averages are compared with the averages for physicians in the same peer group as well as the total cost of each of the patients to the average total cost for the peer group. This process is repeated for all the SFPA members periodically, and sickness funds can ask for investigation of specific physicians.

Based on the SFPA's cost analysis and meetings with individual doctors, the committee can impose penalties. If the SFPA's cost analysis for a physician, which is also given to the physician, shows that calculated costs are more than 40 percent above the average of his or her peer group, then his or her reimbursements are reduced. This reduction is calculated on each component that is significantly over the average. The physician attends a committee meeting to discuss the findings. In many cases, minor adjustments may eliminate the cost differentials. For example, assignment of the physician in a wrong peer group, insufficient adjustment for patient mix (too many elderly or blue collar workers with industrial illnesses), or differences in practice patterns are some of the reasons that can cause cost differentials. Also, if cost savings in other elements or components can be shown, then deductions are usually removed. For physicians with intentional pattern of excessive utilization and/or ineffective or unnecessary care, their deductions can be increased or, in some rare instances, their right to treat sickness fund patients can be revoked. An appeal process is available for physicians if the board does not accept their explanations.

Prescription drug costs have been a focus in this process. Physicians were asked to prescribe lower cost generic medicine. SFPAs use detailed drug prescription profiles of individual physicians to show their prescription patterns. The hypothetical versus actual costs based on prescribing generic versus actual prescriptions are calculated and compared. In some cases, physicians can be forced to pay back the differences.

The monitoring committee also considers physicians' roles in affecting volume of other services provided to patients. For example, physicians' prescription behaviors are reviewed on a periodic basis and, if prescription drug volume and expenditures are higher than anticipated, fines may be imposed on physicians as a mechanism for encouraging compliance with the ceiling established.

Although the review process is formal, the atmosphere is collegial or friendly. Almost all physicians have been to a committee meeting in their career. Some physicians have to make continual appearances. Approximately 20 percent of physicians appear before committee and 2 to 6 percent a year goes through the appeal process. The physician reviews are conducted every three to six quarters, and several quarters are reviewed at a time.

Not everyone is happy with the economic monitoring system. There are concerns from both the sickness fund managers and physicians. One concern is that too much emphasis is placed on the statistical comparisons of group averages. Since the averages may be increasing over time, developing or defining medical standards may be the better way to approach the problem. Another problem is that some physicians do not change their practice patterns even with the reductions in reimbursements, so some have questioned the effectiveness the monitoring.

Private insurers do not use economic monitoring but review the bills they receive to check charges against standard tariffs, compare diagnosis with treatment, and examine total costs of the bills. If any concern about a bill arises, then the patient is asked to discuss the matter with the physician, since no contractual agreement exist between the insurer and the physician. Although insurers can refuse to pay a bill based on irregularity in treatment methods or ineffective high cost care, this sanction is rarely used.

4. Geographic Areas for Prospective Budgeting

Guidelines for negotiations for prospective budgets are determined at the national level in West Germany through a process of negotiation among representative organizations of payers, providers, and government. The actual implementation of prospective budgets, however, occurs at the regional level within West Germany. The regional level monitoring commissions that consist of representatives from payer and provider groups within the region determine ceilings by type of service within the region, monitor performance, and impose penalties, when necessary.

C. Discussion of the West German System

West Germany provides an interesting example of a national health care system that relies on private sector arrangements to comprehensively insure its population. That private sector approach is carried out through the process of national policy implementation intended to constrain growth in total health expenditures. In addition, the de-centralization of the system to the regional level provides parallels to the United States governmental structure.

Several aspects of the West German prospective budget policy are particularly interesting for considerations of a policy approach for the United States:

- Physician association membership in West Germany is mandatory. As a result, the regional physician organizations represent all physicians in the geographic unit.
- The physician associations play a major role in the negotiation of expenditure ceilings and, in addition, participate in ongoing management and monitoring of performance under the prospective budget system.
- Prospective budgeting in West Germany is limited to ambulatory services; physicians who provide care in hospitals are salaried and are not affected by the prospective budget policy. However, these hospital-based physicians are not permitted to have private, non-hospital ambulatory practices, even to the extent of providing follow-up care for hospital episodes.
- Prospective budgeting includes all ambulatory care expenditures for services covered by the health insurance funds. There is explicit recognition of the interrelationships among types of health services and physicians are offered incentives (or penalties) not to shift expenditures to other services, in order to maintain physician expenditures within expenditure ceilings.
- There is explicit recognition that physicians who are paid on a fee-for-service basis face incentives to increase volume of services. West Germany has developed a system that integrates the monitoring of the volume of services on a periodic basis with the payment system by retroactively adjusting fee levels to ensure that expenditures remain within the budget. While individual physicians may still do better financially by increasing volume, the marginal benefit to increased units of service is less if all physicians increase volume.
- The national government in West Germany plays a minor role in this system. Although a national commission determines total health expenditure guidelines, it is the payer and provider organizations that negotiate the actual ceilings and monitoring and feedback mechanisms.

Overall, the West German health care system has many similarities to the U.S. system. The emphasis on ambulatory health care cost containment is interesting and the role of physicians' associations in implementing the system is extraordinarily broad in West Germany. It is particularly of interest to note the emphasis on management of volume increases under this system and the attention that is paid in monitoring to the role that physicians play in directing the provision of all health care services.

D. DISCUSSION

The experience of Canada's provinces and of West Germany is useful in considering the feasibility of a prospective budget system for containing medicare costs in the U.S. While there are significant differences between the U.S. health care system and the systems of these other countries, a number of useful observations may be made:

- The medical associations in Canada and West Germany have an important role in negotiating, implementing, and monitoring the prospective budget system. While relationships between physician organizations and the government are not always perfectly harmonious, there is a cooperation that facilitates the operation of the prospective budgeting and the health care system.

- Neither of these countries relies on patient cost-sharing as a mechanism of controlling volume or expenditures. The responsibility for decisions about volume is placed on providers.

- While prospective budgets are set for the entire area or system, there is sometimes a cap on individual physicians billings, volume, and/or income that focuses the incentives of prospective budgeting and reduces the ability of individual physicians to respond only to their own incentives, rather than to broader group incentives.

- Monitoring and feedback is very timely. Physicians in Canada and West Germany know on a quarterly basis whether they're meeting their targets, so that individual physicians, physician groups, and the Government can respond. Timely monitoring and feedback depends upon an adequate data system that can track volume and expenditures accurately on a continuous basis.

- The scope of the prospective budget in these countries encompasses all ambulatory services, with separate cost containment mechanisms for hospitals and hospital-based physician services.

- Use of specialist physician services in Canada is, to a great extent, through referral from a primary care physician. Patients are seldom able to directly arrange an appointment for specialist services, without a referral from a general physician. Thus, there is more capability for control of volume through referral arrangements.

- The geographic area for prospective budgeting in Canada and West Germany is the province and the regions, the approximate equivalent of the State in the U.S. In Canada, exemptions from the prospective budget are provided for physicians practicing in frontier areas.

The principal difference between the U.S. and these other countries is that West Germany and Canada are managing a national health care system in setting prospective budgeting policies. Consequently, they do not need to address issues of differential access or quality of care that might result from imposition of a budget on one segment of the system. Physicians have no reason to prefer one type of payer to another in most cases and, therefore, do not face incentives to treat classes of patients differently. Similarly, since the entire system is covered by the prospective budget, Canada's provinces, and West Germany do not have to be concerned about cost-shifting among payers and the possibility of these shifts creating severe financial crises in the private health care sector.

Finally, the fact that the U.S. medicare program accounts for approximately almost 30 percent of total physician revenues makes it somewhat less likely that cooperative physician organizations will emerge to participate in the implementation and monitoring of a medicare Part B prospective budget policy. While physician participation may not be crucial to the successful operation of a budgeting policy, the evidence from West Germany and Canada does suggest that these organizations may facilitate the process.

CHAPTER 4. ALTERNATIVES IN THE DESIGN OF A PROSPECTIVE BUDGETING SYSTEM

As described in chapter 2, a cost-control system designed around prospective budgeting includes three major activities: (1) determining the prospective budgets; (2) monitoring the performance of providers included under the prospective budgets; and (3) based on performance relative to the budget targets over a specified period of time, providing for a response that either penalizes or rewards providers for their behavior, or triggers some other action that will help keep expenditures within budgetary limits during future periods. This chapter describes the major technical issues in the design of such a system, and discusses how the alternatives may influence its effectiveness. Throughout this chapter, it is assumed that some type of fee-for-service reimbursement system would be retained. This is not a requirement for all forms of prospective budgeting systems. For example, some forms could rely on negotiated salaries or capitation payments. However, the assumption of a fee-for-service reimbursement system parallels the current reform debate that centers around a RBRVS.

DETERMINING THE BUDGET

The issues involved in setting area-wide prospective budgets for medicare expenditures are, in some respects, comparable to the issues in setting payment rates for hospitals under PPS or setting capitation payment rates for risk-contracting HMOs and CMP. That is, for a defined payment unit, the objective is to set budgets or payment levels that are reasonable, given all of the circumstances facing the providers, while providing incentives that encourage cost-effective or efficient care. If the budget targets or payment rates are set relatively high, the risk of penalties or losses would be low and the system wouldn't stimulate any behavioral change. If the rates are too low and the incentives too strong, providers may respond in undesirable ways, such as limiting access to services or changing practice patterns in ways that may reduce quality.

While there are continuing debates over how well the PPS and risk-contracting rate setting systems achieve these goals, their broad outlines suggest general strategies that can be replicated. With respect to hospitals under PPS, the basic payment unit is the hospital stay. Payment amounts per admission are based on national average costs in a base year, adjusted for types of patients treated DRGs, wage rates in each hospital's area, and certain characteristics of the hospital, such as its teaching program and whether it treats a disproportionate share of low income patients. For HMO/CMPs, payments are made monthly for each person enrolled. These "capitation rates" are based on average fee-for-service expenditures per beneficiary for covered services in the enrollee's county of residence, adjusted for certain characteristics of the medicare beneficiaries who enroll. In both cases, the payment rates are based on some standard or baseline that is believed to represent a reasonable payment per unit of service--adjusted national average costs per admission for hospitals under PPS, and fee-for-services expenditures per beneficiary per month for HMOs and CMPs. These standards are then adjusted to reflect some of the special circumstances of the hospitals and HMO/CMPs. For example, the PPS rates are adjusted for circumstances that are generally outside a hospital's control (local wage rates) and to recognize certain costs incurred by hospitals in providing special services. That is, teaching hospitals and hospitals serving a disproportionate share of low-income patients incur higher costs.

Similar issues must be addressed in setting prospective budgets for medicare services. First, the scope of the budget must be determined; this corresponds to selecting the payment units under PPS and risk-contracting. The scope of the budgets is determined by two factors--(1) the scope of services included under the budget and (2) the definition of the geographic areas that define the areas for which the budgets are set. The basic issues involved in defining the budget scope and applicable geographic areas were discussed in chapter 2. Once these decisions are made, the budget baseline, or standard, must be defined and estimated for each area. The standard will require explicit decisions regarding how it should be adjusted for local circumstances so that appropriate incentives are created.

A. Alternative Budget Baselines

In general, a prospective budget would be estimated from historical data, updated to reflect current circumstances. In its simplest form, this process could use expenditure data from a prior year, known as the base year, updated to reflect inflation (either economy-wide or specific to the health care industry) between the base and budget years. In a stable environment, such an approach could produce a reasonable estimate of expenditures that could serve as the basis of a prospective budgeting policy. However, the health care delivery system is neither stable nor simple. The beneficiary population grows and changes in composition. Changes in health care technology influence the mix and volume of services provided. The distribution and availability of physicians and other medical resources change. The adequacy of available care varies by area. These and other factors will affect the level of expenditures incurred in each area. Unless taken into account when establishing the prospective budget targets, these factors could lead to unintended incentives and outcomes.

The budget baseline is the standard against which performance in future years is compared. As such, it represents a theoretically desirable pattern of expenditures. Given a specified set of prices, it also represents a desirable mix and volume of services. If it was possible to agree on an ideal mix and volume of services, a baseline could be estimated that represents the ideal. However, no consensus has been reached on what such an "ideal" pattern would be.

Currently, the medicare program uses two different types of baselines for establishing prospective prices or budgets. The PPS standard is based on a national average--the adjusted average cost per case in a fixed base year

(1981), rolled forward to the current year. The HMO risk contracting program uses a local standard--estimated fee for service expenditures in a recent year(s) per beneficiary by county,. adjusted for beneficiary characteristics.

The selection of a baseline involves choices on two basic issues: (1) should the baseline incorporate a national or local standard; and (2) should the baseline be fixed at some point in time, or use the most recent data available, an option known as a rolling baseline? Each option has certain advantages and disadvantages which are discussed in the following sections. Depending on the choices made on these two issues, it may be necessary to provide for certain adjustments to the budget baseline to insure that the incentives of the prospective budgeting system are properly focused. Potential factors that could be used to adjust the baseline are also discussed.

1. *National v. Local Standards*

A national standard would use national utilization or expenditure patterns as the basis for estimating areawide prospective budgets. For example, the budget could be estimated as the national average volume of services per beneficiary, valued at national or local prices, times the number of beneficiaries residing in each area. Use of this type of national utilization standard assumes that the national average pattern of services and/or price of services is desirable. Areas that currently exceed the national average would generally be identified as overutilizing services and be subject to penalties; areas below average would not. Areas that have relatively poor access to care would be unlikely to exceed the average. Thus, a national standard generally would not penalize areas whose growth in expenditures was due to an improvement in below average access.

Use of a local standard assumes that local practice patterns and prices are either appropriate, or represent a preferred starting point for a prospective budgeting policy. In this case, the budget could be based on expenditures in some prior year, inflated to current prices and updated to reflect growth in the number of beneficiaries. Local practice patterns and prices would be implicitly reflected in such a budget. Local standards would tend to limit future growth in volume while allowing the area to maintain the status quo. That is, areas with high volume would not be more likely to exceed the target than areas with relatively low volume. It also should be noted that the term "local standard" does not necessarily imply that it would be based on a small area. The geographic areas chosen as the basis for the prospective budgeting policy, (counties, States, prevailing charge localities, etc.) would determine the basis of the local standard.

Use of a national standard could require many adjustments to lessen the possibility of unintended consequences. Using PPS as an example, Congress recognized that there are many factors, some outside the control of hospital administrators, that influence hospitals' costs. These include teaching activity, care of low-income patients, local wage rates and case mix. In the absence of adjustments for these factors, PPS payments could either discourage certain types of activities, or produce windfall gains and losses. The same argument applies to prospective budgets based on a national standard. Service mix, volume, and expenditures differ between areas for a variety of reasons: differences in access, patient income, availability of supplemental insurance, price, and other factors. In imposing a standard based on a national average, Congress may wish to consider how, if at all, the budgets should be adjusted for local circumstances. The analysis in chapter 6 indicates that a national standard based on average national volume and price would likely concentrate the areas that would exceed their budgets almost exclusively in large urban areas, especially those with high concentrations of medicare beneficiaries.

Use of a local standard would require fewer adjustments because the standard would implicitly reflect the local circumstances that influence expenditure levels. On the other hand, a local standard may implicitly adjust for factors that are inappropriate. For example, research has shown that practice patterns vary between geographic areas, but the reasons for such variations are not well understood. A local standard would build these variations into the budget and allow them to be perpetuated, while a national standard would increase the pressure for more uniformity, and hopefully more appropriate patterns of practice. In addition, the analysis in chapter 6 indicates that locality-specific budget standards highlight data problems and the effects of random variation in expenses in smaller, rural areas.

A disadvantage of a budget based on a national standard is that it could require that some areas accept, in essence, rollbacks in volume and revenues to stay within budget. That is, depending on how the budget is constructed and how strictly the budget limits are enforced, some areas may be virtually certain to exceed their budgets unless they achieve large reductions in expenditures. In some cases, the necessary reductions could be so large as to make the incentives ineffective. That is, rather than trying to achieve the impossible, physicians and providers in these areas could opt out of the system, denying access to medicare beneficiaries, or respond in other inappropriate ways.

A local standard would not penalize high volume areas for past behavior. This option accepts current practice as a reasonable starting point, while creating incentives to limit growth in subsequent years. On the other hand, a local standard would restrict growth in areas with below average expenditures. For example, an area may have low expenditures because of poor access to care--such as an insufficient number of practicing physicians. In this case, the incentives are to maintain the status quo--poor access. If access improved, volume would increase, the budget would be exceeded, and the area subject to penalties.

The significance of the difference between national and local standards will vary somewhat depending on the choice of localities for budgeting. If the areas are internally heterogeneous, such as States, the differential effects would be relatively low. For example, most States probably have areas that are both over and underserved. Thus, a local (State) standard would tend to be loose in some areas and tighter in others. On the other hand, if the areas are internally homogeneous, such as many counties are, the differential between local and national standards would be larger, perhaps requiring more adjustments for local conditions than would otherwise be necessary.

In summary, the arguments for and against national and local standards are flip sides of a coin. Under national standards, high cost areas would tend to be penalized while services in low cost areas are unconstrained. Using local standards, low cost areas are prevented from striving to reach even an average level of expenditures while high cost areas are permitted to grow, subject to the budget constraints. This suggests a potential merging of the two approaches. That is, the prospective budgets in high cost areas could be set to permit minimal growth, without requiring rollbacks. The tight limits in these areas could then be used to finance more liberal growth (i.e., higher budget targets) in areas that are below average. In effect, this approach is similar to the PPS transition policy that moved from a local to national standard over time. As with PPS, this could serve as the basis of a transition policy, moving the budgeting system from a local to national standard over an interval of several years.

2. *Fixed v. Rolling Baselines*

A fixed baseline implies that the standard for setting the prospective budget, whether local or national, is fixed in time at some prior year. Each year, the budget is simply updated to reflect inflation and any other factors considered important. The PPS represents an example of a system with a fixed baseline. The PPS rates are based on hospital costs in a specific year--1981. As enacted, rates in each year reflect hospitals' costs in the base year, updated to the current year according to changes in the hospital market basket index and changes in productivity and technology.[40] A rolling baseline alters the base period over time. The HMO risk-contracting program uses a rolling base period. That is, the current year's rates are based on the most recent data available.[41] As data from a more current year become available, the earliest year is dropped from the database used to estimate current rates.

A fixed baseline using a local standard locks the existing distributions of relative expenditures in place. Subject to any adjustments to the budget to reflect changing local circumstances, the relationship between budgets in different localities would remain relatively constant.[42] Using a rolling baseline, each year's budget is based on expenditures during one or more recent years. In this case, the current year's budget targets reflect recent changes in expenditure levels over time. In the first year of a prospective budgeting system, a fixed baseline would be identical to one estimated from a rolling baseline. However, these two approaches have different effects over time, and these effects vary depending on each area's performance relative to the budget.

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[40] Legislation has altered somewhat the relationship between 1981 costs and current rates. However, the basic premise remains a key element of the PPS.

[41] A 5 year moving average of per beneficiary fee-for-service expenses, using the most recent data available, forms the basis of payment.

The difference between the two approaches is illustrated by the following examples. Assume a fixed budget baseline that is uniformly increased by 5 percent per year. A community with expenditures below budget in the first year would have a cushion in the second. Performance in the first year is rewarded, but the incentives for continued cost-containment efforts would be weaker in the second year. On the other hand, a community that exceeded the target in the first year by more than 5 percent would have to reduce expenditures in the second just to break even. Not only is poor performance penalized, but over time the penalties for continued poor performance become increasingly stiff, and the budgets more difficult to meet.

Alternatively, consider what happens under a rolling budget baseline. For illustrative purposes, assume that each year's budget is based on a 5 percent increase over the prior year's expenditures. In this situation, the strength of the incentives is constant over time, regardless of each areas's prior performance relative to the budget. Areas with good performance aren't rewarded with easier targets; localities with poor performance aren't penalized with more stringent targets. This does not imply that these areas wouldn't be rewarded or penalized; as described in the section on financial incentives below, there are a variety of mechanisms that can be used to reward or penalize performance. Rather, it implies that the stringency of the budget is not part of the reward system.

It should also be noted that the issue of whether to use a fixed or rolling baseline is linked to the question of whether to use a national or local standard. A national standard implies a known objective--national average expenditures or patterns of utilization. In this case, a fixed baseline has the advantage of keeping a fixed objective. Areas at or below the national average benefit; areas above it are increasingly penalized. A local standard suggests using the budgets to move toward some objective over time, either an annual limit on growth in expenditures or perhaps a national standard. In this case, a rolling baseline would keep the strength of the incentives within certain limits while continuing to provide incentives to limit growth in expenditures.

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[42] The relationships between expenditures would depend on the effectiveness of the overall prospective budget policy in controlling expenditures.

In summary, a fixed baseline creates somewhat greater control over growth in expenditures. The budget increases at a set rate, even if all areas exceed their goals. On the other hand, a fixed baseline may lose some opportunities for program savings; even if all areas are under budget, the targets would continue to increase at the predetermined rate. A rolling baseline serves to keep the strength of the incentives constant, but is less effective at controlling expenditures as the targets are based on prior performance. Poor performance (high growth in volume) would result in higher targets in the next budget cycle.

B. Updating the Budget Targets

When using either a fixed or rolling baseline, the budgets would be updated annually. In this regard, a distinction needs to be drawn between updating payment rates, and updating budgets. Updating payment rates is a price setting function. As described below, this update could be used as part of the feedback system to reward or penalize performance, or to set prices that would keep expenditures within a specified budget. Updating the budgets establishes the next year's performance standard. While the two updates perform different functions, they could be linked. That is, the price update could be set to achieve a specified level of expenditures. For example, the budgets could be set using a constant percentage annual increase relative to a fixed baseline. The price update, based on the most recent year's volume and mix of services could be set to produce expenditures at the budgeted level.

In general, there are two main options for updating the budget targets. First, the update could be based on a predetermined formula. Second, as in other countries, the update could be based in part on negotiations between the government (or its agents) and physician groups. There currently aren't any established groups in this country with whom the government negotiates. As noted in chapter 2, a budget system could be designed that both gave physicians incentives to organize and would give those organizations a significant role in setting the prospective budgets.

The update should reflect certain factors underlying changes in expenditures. These include but are not limited to: growth in the beneficiary population, aging of the beneficiary population, certain changes in technology and practice patterns, changes in productivity, and changes in price (both economy wide as well as prices for medical care). If the update is based on a predetermined formula, the value of each component in the formula would be set annually. For example, the formula could set the update equal to the percentage change in the GNP or GDP, plus growth in beneficiaries and plus an additional amount for changes in productivity, technology and practice patterns. In this case, changes in price (inflation) are subsumed in factors measuring growth in the overall economy.[43] Alternatively, the formula could begin from allowed changes in price (such as the percentage change in the MEI), plus additional percentages for growth in the number of beneficiaries and for changes in other factors.

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[43] Note that the GNP also reflects some growth in the overall population and that it may be appropriate to adjust the formula to reflect this.

However the formula is determined, there are some factors for which there are no direct measures--changes in productivity, the effects of changes in technology, and increases in volume in accordance with changes in accepted medical practice. Some procedure for making recommendations on these factors might be part of a budget system.

C. Adjusting the Budget Baseline

As noted above, medicare is not a stable system. From year to year, various factors affect both expenditure levels and patterns of care. Overall, the number of beneficiaries grows by about 2 percent annually. On the other hand, in specific areas of the country the number of beneficiaries could grow, stay the same, or even decline. The characteristics of the covered population change. For example, the medicare population is slowly aging. These demographic factors effect both the volume and types of services that should be provided. Prices change (generally increasing), coverage and payment policies change, new technologies emerge and diffuse throughout the country, the number and geographic distribution of physicians and other providers change, new services are substituted for old, and old services are provided by new types of providers or in new settings. All of these factors affect the level of medicare expenditures in some way.

The evolving characteristics of the covered beneficiaries and changing prices and practice patterns have important implications for establishing a prospective budgeting system that creates incentives for behavioral change. If the areawide budgets reflect these factors, there is a risk of creating incentives that lead to unintended consequences. For some issues, it may be obvious that the process for establishing the budgets should take specific factors into account. For example, expenditures are a function of the number and age of covered beneficiaries. Physicians in an area can't influence the number and ages of the medicare beneficiaries residing in their service area.

On the other hand, there may be changes occurring in the health care system that a prospective budget system may not want to encourage. For example, increases in the volume of services of marginal medical utility.

The implications for a prospective budget system for emerging technologies are complex. For example, in the 1970s, cataract surgery with intraocular lens (IOL) implants was still a complex procedure. Changes in technology made this procedure both safer and easier. Since 1980, the frequency of cataract surgery has grown such that it currently accounts for a greater share of medicare expenditures than any other single procedure. Even after a 10 percent reduction in its price, cataract surgery with an IOL implant accounted for over 6.2 percent of total medicare expenditures for physician services in 1987. This procedure has been the source of much controversy. However, the controversy generally has been over its price. It is generally accepted that the procedure has provided significant medical benefit for most cataract patients.[44]

A prospective budget in place during this time would have had to balance the desire to encourage the spread of a valuable medical procedure with the need for its price to reflect reductions in the complexity and risk of the procedure. This is an example of the desireablity of physician organizations participating in the budget setting process.

These examples illustrate one of the problems in setting budgets. There may be changes in some factors, or simply differences in those factors between areas at any point in time, that should be reflected in the budget estimates, and other factors that should not. The question is, which is which, and how the budgets should be adjusted to reflect them, if at all? This debate is not unique to prospective budgeting systems--the same arguments arose during design of the PPS, and explicit choices were made. For example, PPS payment rates reflect differences in local wage rates. On the other hand, the rates don't reflect differences in hospital costs arising from differences in hospital size or length of stay. PPS payments reflect case-mix, teaching activities, and care of low-income patients, but not hospital occupancy levels or malpractice costs.

There are a variety of factors that could be used to adjust estimates of prospective budgets. These include demographics, prices (and factors affecting price), access variables (such as physician to population ratios), volume of services, and practice patterns and service mix. Which factors are appropriate as budget adjustments depends on the significance of each factor, the scope of the budgeting system, and other design issues. The following sections discuss each of these factors, including their potential affects on the incentives of a budgeting system, and the benefits and risks of either reflecting or ignoring them in setting the budgets.

1. Demographic Factors

Demographic factors include both the number and characteristics of the population in each budgeting area. Potentially significant population characteristics include the age, basis of entitlement (aged, disabled, and End Stage Renal Disease (ESRD)), sex, and relative health status. Some form of each of these variables is currently used in setting rates for risk-contracting HMOs. That is, the AAPCC is adjusted for age, basis of entitlement, Medicaid eligibility, and institutionalization status (health status) of enrollees.

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[44] In recent years, there has been growing concern over the appropriateness of some cataract surgery. That is, the procedure is being done on some patients at earlier stages of the disease when they have only marginal visual defects. Thus, it is being argued that these patients are receiving only marginal medical benefit while being exposed to the risk of surgery. It is not known what proportion of the overall growth in cataract surgery is accounted for by these types of patients.

Although each of these factors is related to medicare expenditures per person and is used in setting AAPCC rates, it does not necessarily follow that all should be used to adjust prospective budget estimates. While there is some debate about their effectiveness, these adjustments are intended to adjust the AAPCC rates for the effects of selectivity in HMO enrollment patterns. In the absence of significant annual change, annual updates to areawide budgets could ignore this issue, picking up changes over extended periods through periodic rebasing of the budgets. Also, it may be that these variables are more stable if the budgeting areas are relatively large, such as States. In addition, if the areawide budgets are based on a local standard, or rolling baseline, some of these factors may implicitly be reflected in the budget estimates. Finally, although these factors are statistically related to expenditures per person, they actually explain only a very small proportion of the overall variation in expenditures.

2. Price Factors

Prices vary between geographic areas and over time. A recent study showed that the 1984 medicare prevailing charges for medicare physician services in the most expensive State (Alaska) were about twice the prices in the least expensive State (Mississippi).[45] Geographic variations in prices for physician services may be due to many factors including supply and demand, availability of secondary insurance coverage, and area income levels. Prices vary over time due to economy wide inflation, inflation in the medical care sector in excess of general inflation, changes in local supply and demand, and changes in policy, such as reductions in the prices recognized for overpriced procedures. Prices in some geographic areas increase faster than prices in others.

In general, a prospective budgeting system is not intended to be used as a price control policy, although its interactions with other price control mechanisms is an important issue. Other alternatives, such a limiting the price update factor (i.e., the MEI), are available to control both absolute and relative prices. On the other hand, if the prospective budgets do not reflect price differences between areas, the incentives for controlling the volume and mix of services could be distorted or weakened.

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[45] McMenamin, P. *On Establishing a Geographic Medicare Economic Index: Some Illustrations*. Draft contract report to the Health Care Financing Administration. HCFA Contract No. 500-87-0005, Dec. 1, 1987. 112 p.

For a more complete discussion of issues related to geographic variations in price, see: U.S. Library of Congress. Congressional Research Service. *Medicare: Geographic Variations in Payments for Physician Services*. CRS Report for Congress No. 88-775 EPW, by James Reuter. Washington, Dec. 28, 1988. 70 p.

Prospective budgets using a local standard and a rolling baseline would implicitly reflect geographic variations in price. Budgets based on a national standard would not.[46] Given a national standard, there are a variety of ways to adjust the standard for local prices. For example, areawide budgets could be based on expenditures for a national average pattern of services per beneficiary, valued at local prices. Alternatively, an expenditure adjustment index could be created that reflects the historical variations in prices between areas.

The price factor used in adjusting a budget target could be different from the prices actually paid in each area. As described below, there are a variety of financial feedback mechanisms that could result in local price adjustments. For example, the prices actually recognized for payment purposes could be based on a withhold system and the actual prices paid would depend on each area's performance over the course of a year. Alternatively, the penalty or reward system could determine each area's price update from year to year. Under a system using a fixed baseline, it may be desirable to set the budget using the prices that would apply assuming expenditures remain within budget in order to maintain the basic incentive structure of the system.

3. *Access Factors*

Access to care varies between geographic areas, and differences in access may account for some of the differences between localities in expenditures per beneficiary. It may be important to assess the availability of health care services in the geographic areas, and/or type of service groups that form the basis for the budget. Refining and updating the measurement of "medically underserved areas," negotiating with physician and community organizations, and the use of a national budget standard are examples of potential mechanisms for adjusting the budget to reflect concern over access to care.

A prospective budget based on a national standard has, in effect, a built-in incentive to reduce variations in access. Areas with above average expenditures per beneficiary would be constrained by the relatively low budget implied by a national standard. Areas with below average expenditures would have more liberal budgets, permitting volume to increase if new providers and physicians locate in the area. Budgets based on local standards would, within limits, permit high access areas to maintain their status quo while restricting growth in volume in poor access areas. Thus, if local standards are used, it may be desirable to provide for an explicit adjustment for differences or changes in access. For example, an index of accessibility, based on physician and hospital bed to population ratios, could be developed. For high levels of the index, the adjustment to the local budget target could be flat or even downward to discourage physician induced demand; for areas with poor access, the adjustment could be positive to allow for additional growth.

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[46] See chapter 6 for examination of potential results of using a national standard without adjustments for regional price differences.

4. Technology Changes

Controlling the volume of services is one objective of a prospective budgeting policy. Thus adjusting the budgets for changes in volume would be self-defeating. There are, however, a few exceptions. One exception is changes in volume due to changes in access, described above. A second is changes in volume due to new technologies, or the diffusion of these technologies into new geographic areas. In some cases it may be desirable to force providers and physicians to make tradeoffs. Is the new technology additive or substitutive; that is, should the budgets reflect its increasing use or should the budget be used to encourage relatively limited growth as a substitute for "old" technology? If a new technology simply substitutes for an old, a prospective budgeting system could be used to force providers into assessing the cost-effectiveness of the technology. In cases where new technology provides significant new medical benefit, it may be desirable to adjust the budgets to allow for the spread of new services and technologies. It should be noted that within PPS, Prospective Payment Commission (ProPAC) makes annual recommendations on the update factor that includes an across-the-board adjustment factor for changes in technology. A similar approach could also be used in a prospective budgeting system.

In the absence of an explicit adjustment for volume and technology, a system using a fixed baseline is more restrictive than one using a rolling baseline. A rolling baseline would eventually reflect the expenditures associated with a new technology. However, as long as the use of the new technology is still expanding, even a rolling baseline would inevitably lag current use. On the other hand, a fixed budget baseline would tend to encourage the use and spread of cost-effective technologies while restricting the spread of cost-increasing technologies, regardless of the medical value of the procedure. In addition, if using a fixed baseline, a "technology" adjustment could be the subject of negotiations, whether using a national or local baseline. If using a local baseline, such negotiations could reflect the use of the technology in the local area.

D. Operational Issues

1. Measuring the Budget

As a practical matter, we tend to think of budgets in terms of dollars or expenditures. Dollars are a useful metric for a variety of reasons. One objective of a budget policy is to limit expenditures and dollars are a direct measure of an expenditure limit. In addition, assuming the scope of services included within the budget is broad, such as all Part B services or all medicare services, expenditures are a common measure of the quantity of services rendered across all types of services.

On the other hand, the objectives of a budget policy are somewhat broader than simply limiting expenditures. Expenditures have three major components: number of beneficiaries, prices per unit of services, and the number and mix of services provided. The primary focus of a prospective budget policy is to control total expenditures. Since price controls alone have been ineffective in controlling total expenditures, it would be hoped that the incentives of a prospective budget policy would limit expenditures by stimulating behavioral changes that would alter the mix and volume of services.

Given a focus on volume and mix of services, the budget could be based on units other than dollars. For example, the policy could allow for a "budgeted" number of relative value units of physician services plus a specified number of hospital admissions per beneficiary. Conversion factors could be estimated to allow for tradeoffs between physician and hospital services. Given current knowledge, it may be possible to develop such measures.

On the other hand, while volume is a major focus of a prospective budgeting system, a policy using dollars as its metric also creates incentives for limiting expenditures through price effects. For example, physicians could shift their referrals for diagnostic testing services to lower priced suppliers as part of their overall efforts to stay within budget. Budgets based on relative value units or other metrics would not have an incentive favoring low cost providers.

2. *Data Availability and Timing*

Estimating budgets and making adjustments to those budgets requires data. The availability of appropriate data depends on the level of detail required, which in turns depends on the specific design of the system. While some data are currently routinely available, it may be necessary to establish new routine data collection activities to support a prospective budgeting policy.

Data on outlays are generally available from HCFA at the national and State and county levels. As noted in chapter 6, however, the data are not particularly timely, and suffer from consistency problems across geographic areas and time. If there was a routine need for such data, it could probably be made available on a more timely basis by establishing streamlined reporting requirements for carriers and intermediaries. Data on the volume of physician services rendered are not currently available until several months after the close of each reporting year.[47] If the budget was based on a metric other than dollars, such as relative value units, the lag in collecting the necessary data could be substantial.

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[47] This data (BMAD) is not complete since claims may be submitted up to 1 year after the service is performed. Claims submitted more than 3 months after the close of a year are not included in the data, and the data files are not updated to include claims received later.

With respect to expenditure data, it will be necessary to determine whether the system should count expenditures based on date of service or date of payment. Date of payment data can be made available with minimal time lag, but differ from date of service data due to variations in billing and payment cycles. While expenditures by date of service are a better measure of volume per beneficiary per year, some bills may not be submitted until many months after the service is rendered. This would impose either a substantial lag in obtaining complete data, or a change in policy regarding the deadline for submitting claims. In this regard, it should be noted that other countries require physicians to submit all claims and use electronic claims process similar to credit card systems which would shorten reporting lags significantly.

Data on the number, age, sex, place of residence of beneficiaries are maintained in the HCFA central offices and are routinely available. Data on the location of facilities such as hospitals are available; however, current data on the location of physicians are not (but may be obtainable from the AMA).

Overall, timeliness and accuracy of data is generally an issue, particularly if the budgeting system incorporates a variety of adjustments. However, timeliness is less of an issue in setting the budgets than it is in monitoring performance. While the accuracy of the budget may be improved if based on more recent information, a reasonably accurate budget probably can be projected from historical data. Also, timeliness is less of an issue if the budget uses a fixed baseline. In this case, the new budget for each successive year requires only the data necessary to compute the update formula.

3. *Assigning Services to Geographic Areas*

In general, a prospective budgeting system requires that services are assigned to a particular locality to be counted against that locality's budget. The basis of this assignment could be either the residence of the patient, or the location where the service is actually rendered. A second and related issue is how to address the issue of boundary crossing in setting the prospective budgets. Boundary crossing is a consideration in selecting the geographic areas used in the budgeting policy. However whichever definition is used, beneficiaries relocate, travel or simply seek services outside the area where they reside. Also, patients may be referred to physicians or hospitals outside their areas to receive specialized services that are not available locally. Depending on the magnitude of out-of-area services, it may be desirable to treat these services somewhat differently under a prospective budgeting policy.

Out-of-area care has the potential of distorting the incentives of the system. For example, if the services counting against an area's budget are only those services provided within the area, physicians would have an incentive to refer patients out-of-area while refusing out-of-area referrals themselves. However, the strength of this incentive is difficult to assess as such practices would also tend to reduce a physician's income. If Part A services are included in the budget and services are assigned to the locality where they are provided, hospitals would have incentives to limit their specialized services that attract patients from out-of-area. This incentive would be strongest for areas with a high proportion of teaching hospitals that may attract a significant number of out-of-area patients. If the services are budgeted according to where the beneficiary resides, local physicians and hospitals could be penalized for services provided by out-of-area providers. For example, rural areas could be penalized for the high costs of services provided in urban teaching hospitals. While this would encourage physicians to treat most patients in local hospitals (perhaps helping low-cost rural hospitals to increase their occupancy levels), some individuals might not receive the specialized care they need.

At this time there are no data on the number of services provided to beneficiaries outside their usual place of residence. Thus, it is difficult to assess the importance of these incentives or to assess how the volume of out-of-area care varies geographically. If the volume of out-of-area care is large, or varies significantly between areas, it may be desirable to provide for some adjustment to the budgets to reflect these patterns.

4. Setting Budget Limits (Triggers)

Estimating a budget that represents expected or desired expenditure levels is only the first step in setting performance criteria. Volume and mix of services, and therefore expenditures, are subject to random variation, if only because the incidence of illness will vary somewhat from year to year. Given this random variation, using the budget as strict limits may have undesirable effects. For example, in two areas that responded equally well to the incentives of the budget policy, one area could end up under budget and one over budget due to normal, unpredictable fluctuations in the patterns of illness experienced by beneficiaries. This issue is particularly important if the geographic areas are small, where the effects of random variation are more pronounced.

Given the effects of random variation, it may be desirable to use separate limits or budget targets to trigger penalties. These limits would be somewhat higher than desired expenditure levels to avoid penalizing areas for random fluctuations in demand for services. Such limits could be set at a fixed percentage above the budget for each area. How high to set these limits is, in part, an empirical question: for targets at varying percentages above budget baselines, what percent of areas are flagged as having excessive growth in expenditures, and what proportion of these areas actually experience significant changes in volume and mix of services?

One disadvantage of setting limits above desired expenditure levels is that expenditures could drift up to these higher levels. That is, since penalties wouldn't be triggered until a relatively higher level of expenditures was reached, the incentives to stay within desired budget levels would be reduced.

MONITORING PERFORMANCE

Given a specified budget, an expenditure target policy requires an ongoing process for monitoring the performance of physicians and providers within each area to determine whether the local budget target has been exceeded. In general, the monitoring process also could have two additional elements: (1) monitoring the health care system to assure that "good" or "poor" performance is not due to unintended effects, such as shifts in services outside the defined scope of the budget; and (2) monitoring the prospective budgeting system to assure that the budget targets are neither overly restrictive nor too loose. Finally, monitoring also could be used as part of the penalty and reward system by targeting any penalties within areas on physician and providers that are primarily responsible for the area's poor performance.

A. Monitoring Performance

At some point in each budget cycle, some assessment must be made as to whether each area has stayed within budget. Conceptually, the process of monitoring performance is straightforward--each area faces a target and the question is whether or not that target has been exceeded. However, performance monitoring raises a variety of operational issues, the most critical of which are the availability and timeliness of data.

The availability of data for monitoring performance depends on the type of target that is set, scope of the budget, and the geographic areas used in the budgeting system. Expenditure data are generally available but at the present time are neither timely nor of particularly high quality. It should, however, be possible to establish new reporting guidelines for carriers and fiscal intermediaries that would make the information available. If targets are based on volume of services, such as the sum of Relative Value Scale (RVS) units billed, it will be more difficult and costly to develop routine reporting procedures. For certain types of penalty systems, such as those based on withholds (described in a following section) or if the budget cycle is relatively short, it may be necessary to track expenditures on an ongoing basis.

In general, it would be desirable to have the shortest possible lag between the close of the budget period and imposition of penalties, if any. Currently, claims may be filed up to 1 year after the service is delivered. Thus, waiting for the data to be complete can impose a significant time lag. This lag could be reduced by reducing the time limit within which claims must be filed, using incomplete data to project each area's performance, or using date of payment as the basis for assigning claims to particular budget cycles. However, each of these options has limitations and is subject to some error that would have to be considered in the design of the performance monitoring system.

B. Monitoring Physician and Provider Responses

In general, major changes in medicare policy, and particularly changes in incentives that may have unintended effects, should be monitored to insure that the system is moving in the desired direction. Potential problems that might arise in response to a prospective budgeting system and that should be monitored include:

- shifts in delivery of services outside the scope of the budget--this could include shifts in services to out-of-area through referrals, or shifts to providers not covered by the prospective budget target. For example, if the budget was limited to physician services, patients could be shifted into outpatient hospital settings.
- uneven growth in volume among physicians--this could indicate a failure of individual physicians to respond to the area-wide incentives to limit growth in volume; that is, some physicians may strive to secure a larger piece of the fixed pie, while others restrain volume in accordance with the system's incentives.
- significant reductions in the volume of services--this could indicate that access is being limited, or that the incentives are too strong and may be having an adverse impact on quality of care.
- changes in assignment and participation rates--reductions in these rates may indicate that physicians are trying to avoid the effects of any penalties or price limits by shifting the financial burden of care onto beneficiaries.

Monitoring for these types of effects could be based on reviews of utilization that look for certain aberrant patterns. As described in chapter 2, this monitoring also could use area subbudgets to determine whether problems are limited to certain specialties or types of services, or are widespread. If monitoring identifies problems, some adjustments or changes in policy may have to be considered. There are several potential responses that could be made. In general, these responses are similar to the responses that would be triggered by exceeding the budget targets; that is, financial penalties or increased oversight through focused utilization or peer review activities. For example, increased peer review of individual physicians could be used to limit physician's ability to expand their own incomes at the expense of their local peers. In extreme cases, stiffer sanctions could be imposed.

It should be noted that this type of monitoring need not be a governmental function. For example, physicians in Canada are actively involved in monitoring the behavior of their peers and have the authority to impose financial and other types of penalties. In the United States, the PROs have played an active role in the monitoring the responses of hospitals and physicians to the incentives in the PPS. The involvement of local groups of physicians in this process would tend to reduce any concerns as to whether the burden of limiting growth in expenditures is being shared equally by all concerned. In addition, by involving more physicians in the overall process, they would be more sympathetic to efforts to achieves the system's objectives.

C. Monitoring the Prospective Budgeting System

While the goal of a prospective budgeting system is to create incentives for behavioral change, it must also be recognized that such a system will need adjustments over time. Thus, the monitoring should examine the various elements of the budgeting system to assure that the system is operating properly; that is, does it create the appropriate incentives? Are the budgets targets too tight, or too loose? Does the system encourage shifts outside the scope of the budget? Are the geographic areas appropriately defined? Is the system identifying areas that have the highest growth in volume and intensity of services or are there too many "false positives"?

D. Operational Issues

The key issues for the monitoring system are (1) quality and timeliness of data and, (2) who should perform the monitoring. In general, monitoring prospective budget areas would require the least detailed data but would have to be completed as soon as possible after the close of each budgeting period. Assuming the system is reasonably well designed initially, ongoing monitoring of the budgeting system would require more detailed data but would not have to be completed within any specific time frame. Monitoring individual physician and provider behavior would require the most detailed data. While this latter type of monitoring should not be unnecessarily delayed, it would not have to be completed in as short a time frame as performance monitoring.

Data on expenditures are either currently available, or could be made available with some change in reporting requirements. However, even under current reporting, there are problems with the consistency and accuracy of these data. These problems are discussed in the following two chapters that use existing data files to look at empirical issues in designing a prospective budgeting system.

For more detailed monitoring functions, there are several data elements that would be useful but are not currently available. First, while an identification system is being developed and implemented, physicians are not currently uniquely identified. Lack of a unique identifier system precludes isolating physicians who are abusing the system at the expense of their peers. Second, all services are not billed using a common coding system. While implementation of the HCFA common procedure coding system (HCPCS) has provided greater consistency of reporting for physician services, other services are not yet commonly coded. For example, some outpatient hospital services (e.g., visits) are not separately coded and reported. While common reporting would not be required for performance monitoring, it would facilitate monitoring of shifts in services from one type of provider to another, and in monitoring for shifts of services to providers outside the scope of the budget.

Finally, there is the issue of who should do the actual monitoring. Monitoring performance to assess if budgets are being met probably should be done either by the carriers or be a function of the HCFA central office. If the scope of the budget is limited to Part B or a subset of Part B, monitoring could be delegated to the carriers. Otherwise, given the need to combine carrier and intermediary data, it should be done in the central office. Monitoring the design of the prospective budgeting system also should probably be a central office function, although it may be desirable to seek formal input from physicians and other providers subject to the budget targets.

Monitoring individual physician and provider behavior, targeting penalties, and developing policy responses is a function that could benefit from input from a variety of sources. This type of monitoring can be thought of as a formal process for "managing" the health care system's responses to the incentives of the prospective budgeting system. That is, if the health care system in each area responds appropriately, no action would be necessary. However, if the system responds inappropriately, intervention may be required. On the one hand, this intervention could be essentially regulatory, with HCFA as the focal point. On the other hand, the process could engage physicians and other providers as participants. Canada and West Germany have formal processes for involving physicians in the management of their systems. For example in Ontario, a physician group performs utilization review and has the power to impose sanctions. This type of involvement has several advantages. First, the monitoring itself would benefit from the specialized knowledge of physicians and other segments of the health care delivery system. Second, the process would be less regulatory, taking on some of the characteristics of peer review and self-management. Third, the success of corrective policies will depend on the support of physicians and other participants in the health care system. As such, it would be desirable to involve them as early as possible.

If it is desirable to seek input from provider groups, it must be recognized that truly representative groups do not currently exist in this country. Both Canada and West Germany rely on groups with mandatory membership, thus insuring the groups are representative bodies. While there are a variety of professional societies and associations in this country, membership is not mandatory and they generally do not include all eligible persons as members. There are groups that represent a majority of some professions and providers. As noted in chapter 2, these include national, State and county medical societies, and national specialty societies. Alternatively, appointed boards or commissions could be created on either a national or State level to provide input.

FEEDBACK MECHANISMS

Setting area-wide budgets and then monitoring each area's performance relative to the budget doesn't create incentives for behavioral change and won't by themselves limit growth in expenditures. The prospective budgeting and monitoring systems identify geographic areas with high growth in expenditures. The incentives and limits are created by having each area's performance, whether good or bad, lead to some type of response--either penalizing physicians and providers for poor performance, or potentially rewarding physicians and providers demonstrating good performance. These responses, or feedback loops, can take the form of financial penalties (or rewards), or the imposition of non-financial limits on services, such as enhanced utilization review. The success or failure of a prospective budgeting system depends, in part, on whether the incentives created by the feedback loops stimulate behavioral change in desired directions.

In general, there are two broad categories of responses--financial, and non-financial. The former include adjustments to payment updates and various "withhold and bonus" systems. The latter include enhanced utilization review and development of practice guidelines. The following three sections discuss the issues in the design of these feedback systems. The first section discusses general issues that arise through the use of financial penalty and reward systems. These issues include: the impact of financial incentives on relative payments, potential physician and provider responses to the incentives, and beneficiary liability issues. The second section presents alternative designs of financial penalty and reward systems. The third section describes feedback systems based on non-financial responses.

A. Financial Incentives--General Design Issues

The use of monetary adjustments serves two functions. First, it creates financial incentives for behavioral change. The incentives for behavioral change are created by the threat of some financial response and are reinforced over time by imposition of penalties in cases of poor performance. Second, depending on how the financial incentive system is designed, it also may limit actual growth in program expenditures.

Regardless of how a financial feedback system is designed, the use of financial incentives raises four general issues: (1) the impact of payment adjustments on relative payments; (2) the potential response of physicians and other providers to the incentives; (3) the impact of payment adjustments on beneficiary liability for covered services; and (4) the scope of the financial incentive system. The following sections discuss these four issues.

1. Impact of Financial Incentives on Relative Payments

It is recognized that medicare's current payment system has led to imbalances in the relative payment level for certain types of procedures. For example, many believe that payments for surgical services are too high relative to payments for medical services. One of the advantages cited for changing the payment system to one based on a resource based relative value scale is that it would correct some of these imbalances. Because information on which to base a RBRVS is imperfect and for other reasons, however, it is likely that concern over the relative level of payments for different types of services will continue. To the extent that imbalances exist, they could affect the number and types of services that are provided in ways that are not efficient.

A financial feedback mechanism of a prospective budget system could be designed to affect relative payment levels or to apply across the board and not change the relative levels at which different services are compensated. Affecting relative payment levels could be accomplished, for example, through monitoring and feedback to subbudgets within a geographic area that are set by types of services. To the extent that expenditures for certain types of services grow at an undesirable rate, the financial feedback would affect their payment levels relative to the payments for services in other service-group subbudgets that do not exceed their budget. On the other hand, countries such as Canada and West Germany generally set and enforce budgets across all types of services (for example all direct physician services in Germany) rather than between types of services.

A prospective budget might also affect relative payment levels across types of geographic areas. To the extent that, for example, urban areas have higher than average volume and price changes and the prospective budget is based on a national standard, the relative differences in per beneficiary expenditures between urban and rural areas could be addressed though financial feedback.

2. *Physician Responses to Incentives*

Both the threat of payment adjustments and the actual adjustments create incentives for behavioral response. However, these behavioral responses could be appropriate, reducing the number of unnecessary or marginally beneficial services provided, or inappropriate, creating responses that either lower quality of care or stimulate even faster growth in volume. As described in chapter 2, physicians have some control over the volume of services they provide and order, and the volume of services rendered may be sensitive to price levels. That is, lower prices could encourage physicians to order more tests, or to perform more services, in order to maintain income. Additionally, lower prices remove financial constraints from beneficiaries who then may seek or demand more services at the new, lower prices. In the absence of other controls, one possible effect of financial penalties that reduce fees would be increased volume. Such a response would limit the impact of the prospective budgeting system on overall expenditures. In the extreme, such responses could lead to faster growth in volume, substantial reductions in prices, and eventually lead to serious limits on access as physicians desert medicare patients for the more lucrative care of privately insured patients.

This potential response to financial penalties emphasizes the need to try and manage physician responses to the system to encourage behavioral changes that contain expenditures without reducing access to quality care. There are a variety of ways in which this could be accomplished. West Germany uses a combination of retroactive fee setting (physicians do not know in advance the exact fee they will receive for a service) and monitoring of individual physician practice patterns to manage physician behavior. Physician organizations, as described in chapter 2, could not only negotiate over fees, but also participate in enhanced utilization review and quality assurance activities intended to help individual physicians find appropriate responses to the financial incentives. The types of activities that could be useful are described more fully in the section on non-financial feedback options. Physicians could also be involved in monitoring utilization in each area and in helping to target any penalties on problem areas.

3. *Beneficiary Liability*

Depending on how the system is administered and physicians are paid, financial incentives under a prospective budgeting system could have an impact on beneficiary liability. Specifically, any reduction in the fees recognized by medicare reduces beneficiaries' liability for coinsurance but increases liability for excess charges on unassigned claims. It should also be noted that not only would these shifts affect beneficiary liability, but they also could reduce the effectiveness of the financial incentives themselves. That is, if physicians can receive a full price for their services through balance billing, they could refuse assignment, avoiding any financial penalty, and thus neutralize the financial incentive.

There are several options for limiting the effect of balance billing on beneficiaries and on the incentives of a prospective budgeting policy. These include mandatory assignment and various types of limits on actual charges. Policies setting limits on actual charges could be modeled after the existing maximum allowable actual charge (MAAC) limits or the special limits on actual charges for procedures whose prices have been reduced, so-called overpriced procedures. As the type of actual charge limit could depend on the design of the financial incentive system, these options are discussed in greater detail in the descriptions of alternative designs of financial incentive systems provided below.

4. *Scope of Financial Incentives*

Targeting of the incentives is a key issue in the design of financial feedback loops. While the area-wide budgets have a specified scope, it may not be desirable to impose financial penalties equally across all services and providers included within the budget's scope. That is, the incentives, either rewards or penalties, could be targeted on those providers with influence over the volume and mix of services, or on providers who are responsible for most of the growth in volume.

One option for targeting the incentives is to differentiate between the scope of services included in the budget from the scope of services subject to the financial incentive system. For example, it may be desirable for the budget to have a relatively broad scope to limit the shifting of services outside the scope of the budget. At the same time, the financial incentive system could be limited to a fairly narrow scope of services, such as all physician services, in order to target the incentives on the medical "decision makers." A disadvantage of this approach is that unless the potential penalties are large, it reduces the effectiveness of the system in limiting actual expenditures.

Physicians control the mix and volume of most medical services through their practice, ordering and referral patterns. Thus, physicians should be a major focus of the financial incentives. On the other hand, it may be inappropriate to penalize providers who have little, if any, control over their own volume of services. For example, while the scope of the budget could be defined to include all Part B services, providers such as independent laboratories and hospital-based physicians could be excluded from the financial penalty system as they have less control over the volume of services they provide.

While physicians control most services, not all services are under the control of independently practicing physicians. Hospitals can influence the number of services provided in their outpatient clinics; for example, it has been suggested that some of the growth in outpatient hospital services has been due to the unbundling of inpatient services, such as preadmission testing. In addition, outpatient hospital services are one of the fastest growing components of the Supplemental Medical Insurance (SMI) program. Therefore, it may be desirable not only to include these services within the scope of the prospective budget, but also to make hospitals subject to any financial incentives included in such a system.

A second alternative for targeting the incentive system is to use information on patterns of care during the budget period to distribute any rewards or penalties. For example, if the budgeting system incorporated the concept of subbudgets described in chapter 2, performance relative to the subbudgets could be used to distribute the financial rewards and penalties within an area. Such a system would require detailed monitoring to estimate the division of rewards and penalties, substantially increasing the administrative burden of maintaining the system. Such an approach would also place greater importance on the careful development of the budgets and subbudgets to insure that the incentives and rewards are properly directed.

B. Alternative Designs of Financial Incentive Systems

In general, there are two basic models of financial incentives within a fee-for-service payment system: limits on updates, and withhold or bonus systems. These models also could used together in various combinations.

1. *Adjustments to Payment Updates*

One option is to make future price updates subject to each area's performance relative to the budget target. Payments in the current year would be unconstrained. The incentives for behavioral change would be created by the threat of reductions in future prices. In the case of poor performance in the current year, a reduced update would be of some help in controlling expenditures in subsequent years, although may not limit expenditures in the current year.

Medicare prices for most services are currently subject to some type of update factor that could be adjusted based on each area's performance. Price updates for physician services (i.e., increases in prevailing charges) are subject to an economic index limitation, known as the MEI. This index is intended to measure changes in physician practice costs. However, since 1984, Congress has mandated specific increases in the MEI limit. Increases in the prices of most other Part B services are subject to other limits; for example, prices for durable medical equipment and laboratory tests are updated by the Consumer Price Index (CPI). The major Part B services not subject to some type of update index limitation are some outpatient hospital services that are still paid on a retrospective cost basis.

In general, using the update factors as a penalty or reward for performance relative to a prospective budget target involves establishing a formula that relates the two. The formula could be simple and direct. For example, if expenditures in an area exceed the budget target by 5 percent, the updates in the following year could be reduced by 5 percent. The relationship between performance and the updates also could be very complex. For example, the update factor could be estimated from an updated budget target (e.g., the current year's target plus a percentage increase) and data on the volume and mix of services in the current year. That is, given the current volume and mix of services, it would be possible to estimate what the average price increase would have to be to stay within the updated budget, given the observed change in volume and mix of services. The update factor would then be set accordingly. Differential update factors also could be determined within areas, according to performance relative to established subbudgets.

The advantages of creating financial incentives through adjustments to the update factors are due, in part, to its relative simplicity. The adjustments require less administrative effort than the other options. Physicians and other providers would understand the nature of the adjustments, enhancing the probability that the threat of an adjustment would stimulate some behavioral change. Given certain assumptions regarding providers responses to any adjustment, this approach would establish some limits on growth in medicare expenditures.

However, there also are disadvantages to this approach. First, physicians' decisions to perform services are removed in time from the imposition of any penalty. Given the time required to collect the necessary data, compute the updates, and then begin paying the reduced fees, there would be a significant lag between the delivery of a service and imposition of any penalty. This would tend to reduce the effectiveness of the incentives.[48] Second, unless the potential magnitude of the adjustments are large (including the possibility of negative updates), adjusting the update factors may not create an effective incentive in any case. Congress has limited the MEI in recent years--freezing fees in some years and providing for updates at less than the full MEI in others. While these have been across the board limits and not conditioned on performance, they have had only a limited impact on growth in expenditures. Indeed, some data suggest that the volume of services has continued to increase, neutralizing a significant portion of the impact of MEI limits on prices. The question of whether a conditional update, one subject to performance relative to a budget target, would be more effective rests largely on untested assumptions about physicians' responses to threats of a price reduction sometime in the future.

2. *Withholds from Current Payments*

This approach is modeled after the financial incentive systems used in some Independent Practice Association (IPA) model HMOs. Physicians are paid on a fee-for-service basis, subject to a predetermined discount or withhold. The withheld amounts are maintained in a separate account. Once the set budget level is reached, subsequent claims are paid out of this account. At the end of each fiscal year, the balance remaining in the account, if any, is distributed to physicians according to a predetermined formula. In an IPA, this formula could take into account the number of enrollees covered (for primary care physicians) or the amount of total charges. The magnitude of the withhold could be annually adjusted to insure that the aggregate budget is not exceeded. This type of system could be directly transferred to medicare. That is, payments would be discounted and the end-of-year balance from the accumulated discounts, if any, would be distributed to area physicians and providers according to a formula. As medicare beneficiaries are not assigned primary care physicians or "gatekeepers," the distribution formula would probably have to be based on total charges or number of services.[49] As described above, the formula also could consider performance relative to various subbudgets in order to focus the incentives more directly on the relevant physician decision-makers.

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[48] In contrast, consider the incentives under PPS. Hospitals have a clear incentive to reduce the costs of each and every admission to maximize the proportion of cases with costs less than the reimbursement amounts. While reduced updates to the PPS rates can strengthen the incentives in future years, the basic incentives encourage behavioral change in the current year.

[49] It should be noted that distributing the withheld amounts proportionally with total charges creates a perverse incentive, rewarding doctors who abuse the system by maximizing the services they provide and bill.

This approach has several advantages. First, the incentives would be immediate. Unlike incentives based on updates for future years, physicians would be consistently reminded of the financial significance of their decisions --every bill would display the discounted amount. The amount of the distribution would be directly related to utilization and costs in the current year. Second, this approach would establish some limits on growth in program expenditures in the current year. Unless growth in expenditures in an area exceeded the budget by an amount greater than the total amount withheld, total expenditures in the current year would remain within or even below budget. That is, if the withhold equaled 10 percent of program payments, expenditures would be equal to the budgeted amount so long as volume remained constant or did not grow by more than 10 percent. Even if growth in volume exceeded the withhold, expenditure growth would be somewhat limited as all claims would then be paid at the discounted level. If volume actually declined, medicare outlays would be less than the budgeted amount as only the accumulated discounts would be distributed. Third, many physicians are participating in HMOs and other types of managed care plans that use a similar approach, and thus may be comfortable with this approach.

Incentives based on withholds would be most effective for providers who control their own volume. That is, while growth in laboratory volume may contribute to growth in expenditures, withholding a portion of payments to laboratories can't stimulate behavioral change as they don't control their own volume. A subbudget approach such as that used in West Germany, with separate budgets and feedback for physician and lab services, for example, might be an effective way to implement a withhold policy.

A second problem is that a system of withholds doesn't necessarily break the link between growth in physicians' incomes and volume of services. For physicians wanting to maintain their income, the objective would be to provide a sufficient number of services to insure that the area consumes at least some of the reserve account. In this case total revenues to the area would equal the budgeted amount. If volume was less than the budgeted amount, total revenues to the area and physician incomes would actually fall. If the cost of large increases in volume exceeded the amount in the reserve, total revenues and physicians' incomes would increase, albeit at discounted prices. Thus, the true incentives actually depend on the relative magnitudes of the discounts and the marginal cost of providing additional services. If the marginal cost is low, physicians could still increase their net incomes by increasing volume, exceeding the budget target, and accepting discounted rates for their services.

A third problem is how to handle beneficiary cost-sharing. Specifically, medicare's total payment on a claim wouldn't be known until the end of the year and the withhold account is distributed. This would complicate calculation of both the coinsurance and excess charge amounts. This could be addressed by making the withhold from medicare's payment, instead of discounting the reasonable charge, and precluding collection of these amounts on all claims. The reasonable charge would remain the same. Therefore, the coinsurance and excess charge amounts would be known and payable. Only medicare's payment would reflect the withhold.[50]

Fourth, it must be recognized that a withhold system would have a significant effect on the timing of expenditures. In effect, the program would hold money for physicians and other providers subject to the withhold. This would delay payments, increasing first year savings for the Federal budget. However, it also could have a significant impact on the cash flow of physicians' practices.

Under a withhold system, some attention would also have to be given to limits on actual charges. Clearly, any attempt by physicians to recoup withheld amounts immediately by raising actual charges on unassigned claims would not only give physicians windfall profits but also defeat the incentives. The current system of MAACs and other actual charge limits provide some protection, but whether these limits would be adequate needs to be examined.

Operationally, a system of withholds would be somewhat more cumbersome to administer than a system based on adjustments to updates. Specifically, a system of accounts would have to be established in each locality for accumulating the withheld amounts and for distributing the balance left in the account at the end of the budget cycle. Expenditures also would have to be tracked on an ongoing basis in each area to determine when to begin making payments out of the withhold account.

3. *Bonuses*

A system of incentives based on bonuses is generally similar to a system of incentives based on withholds. The key difference is in the amount that is distributed at the end of the year. Under a strict withhold system, the maximum amount distributed at the end of each budget cycle is equal to the discounts that otherwise would have been paid. An alternative would be for medicare to share any savings with affected physicians and providers in the form of bonuses. In practice, payments under a bonus system would be made exactly as under the withhold system. If volume was equal to or greater than the amounted budgeted, payments would be the same as under a withhold system. If, however, volume under a withhold system actually declined relative to the budgeted levels, expenditures would be under budget and medicare would accrue some savings. Under a bonus system, these savings would be shared with physicians and providers in the area according to some formula. Under a withhold system, the savings are not shared.

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[50] This approach is similar to how payments are reduced on assigned claims under a Gramm-Rudman-Hollings sequester order. The primary difference is that under the withhold system, the reductions would be in effect on all claims, not just on assigned claims.

In general, a bonus system would have many of the same advantages, disadvantages and problems as a withhold system. There are, however, several distinguishing characteristics. An additional advantage of a system that includes some form of bonuses is in the strength of the incentives. Under a withhold system, physicians are never "better off." Success merely implies that they receive the full amount of their reasonable charges. From the perspective of physicians wanting to maximize or even just maintain their income from medicare, increasing volume remains a viable strategy. A bonus system changes one aspect of this system. Namely, physicians who are successful at controlling the overall volume of services in their areas would not see their incomes fall as much as under a pure withhold system. "Success," and payment of bonuses, would increase payments per unit of service. In addition, bonus payments would provide a cushion on the low end to limit drops in income due to falling volume.

A second advantage of a bonus system is that it may be more acceptable to physicians. That is, rather than a system based solely on penalties of one sort or another, a bonus system offers a balancing of effects--penalties as well as bonuses.

The major disadvantage of a bonus system is that it limits any savings that would otherwise accrue to the medicare program. On the other hand, a system of incentives that includes the potential of gains may stimulate greater behavioral change, offsetting some of the reduction in savings.

C. Non-Financial Responses

Other countries with prospective budgeting systems combine financial with non-financial incentives. These non-financial responses generally take the form of review of physician patterns of service, with corrective action taken against physicians whose patterns of service are outside of the negotiated norms. An advantage of this approach is that it bridges the gap between areawide performance and individual provider behavior. While these activities would be triggered by poor performance at the area level, the activities themselves would focus on the actions of individual physicians and providers. Under areawide financial incentives, individual physicians could elect to maximize their services to obtain a greater share of a limited pie. By their very nature, the nonfinancial responses would isolate these physicians and providers and attempt to change their behavior, passing over physicians whose patterns of care fall within acceptable bounds.

The use of non-financial responses also has other advantages. First, they focus directly on one of the problems underlying growth in volume--inappropriate patterns of practice--rather than working indirectly through financial incentives to achieve the same objective. Secondly, while these activities can stand alone, outside of any sort of budgeting system, a prospective budgeting system could increase the cost-effectiveness of these approaches by focusing efforts on those services and areas that contribute most to increasing expenditures. There is nothing new about the potential uses of utilization and peer review. However, their utility could be enhanced if used as part of an overall strategy for controlling expenditures. Third, nonfinancial responses have lower risk of stimulating inappropriate behaviors by physicians. In fact, there is a possibility that this approach would improve the overall quality of care.

The primary disadvantage of relying on nonfinancial responses is that they don't have a direct impact on expenditures. They may affect practice patterns, which may ultimately effect expenditures. But they don't limit expenditures. Even if they are effective, there will be a significant delay while problems are identified, solutions are worked out (such as developing model practice guidelines), and providers are educated, before practice patterns would begin to change and savings could be realized.

Regardless of the form of the nonfinancial responses utilized, this approach raises two general issues. First, who would be responsible for administering the response system; that is, who would perform the utilization review, establish the practice guidelines, and educate physicians? Second, how would the results of such activities be enforced? The following sections discuss these two issues, followed by a detailed discussion of the types of activities that could be used as part of a prospective budgeting system.

1. Participants in the Process

Utilization review of medicare services is currently conducted by a variety of public and private entities. Part A intermediaries and Part B carriers review claims for appropriateness. PROs review hospital admissions, outlier cases, some HMO services, and are initiating review of outpatient hospital services. Hospitals, large clinics, and HMOs carry out their own internal review of services. Many medical and specialty societies are engaged in developing practice guidelines, and participate in various utilization review activities. While any, or all, of these entities could contribute to the administration of a system of nonfinancial responses, there are certain factors that might favor some over others.

First, there would be an advantage for entities whose geographic scope matches the areas used in developing the prospective budgets.

Second, there are both advantages and disadvantages to using what might be called "representative" organizations--organizations made up of professional physician and/or provider groups. On the one hand, the actions of these organizations could have greater impact because they would be seen as performing peer review instead of acting as regulatory bodies. In addition, these types of activities require substantial medical and professional input. These organizations represent a ready source of such expertise. On the other hand, there may be some concern that these bodies would place their parochial interests before that of the government and patients. As described in chapter 3, both Canada and West Germany use physician groups to help administer their systems. Such use of professional organizations in this country may require some relief from antitrust considerations. It should also be noted that the existing organizations in this country are voluntary, and in some cases represent only a portion of the total profession.

Finally, there is value in coordinating these activities at the national level. It is unlikely that each area's "problems" are unique. Coordinated national efforts, such as the development of practice guidelines for specific classes of services, would be more efficient than having each area develop its own. Thus, there are potential roles for many different types of participants: public and private, national and local.

2. *Enforcement*

Utilization review, development of practice guidelines, and education of physicians are relatively nonthreatening activities. By themselves, they could have some beneficial effects on quality of care and, by helping physicians to understand what patterns of care are of marginal medical benefit, could help restrain growth in expenditures. On the other hand, their benign nature limits their effectiveness for controlling growth in expenditures. If these activities are to be effective in limiting growth in expenditures, they must be linked to some type of enforcement or penalty system.

There are a variety of enforcement mechanisms that could be used; some are currently in use in medicare. These include prepayment review of claims, prior authorization of services, post-payment denials of payment for services that exceed established guidelines, suspension of physicians and providers from the program, and fines. There are no data available that describe how often these sanctions are used, or to what effect. However, if reliance on nonfinancial activities is to be effective in limiting expenditures, a system of effective sanctions must be designed and implemented.

3. *Utilization Review*

The term utilization review encompasses a variety of activities. In general, the term describes an oversight function. That is, either prior to the delivery of a service, prior to payment of a claim, or even after payment of a claim, the appropriateness of the service is assessed, and some action is taken based on that assessment. For the purposes of this discussion, it is useful to divide utilization review activities into two broad groups: monitoring and evaluation, and utilization control. The former activities, focused on problem identification and assessment, belong to the monitoring phase of a prospective budgeting system and are described above. The latter activities, focused on eliminating problems, can be considered as a potential response to the budgeting and monitoring phases of a prospective budgeting system.

Utilization control activities include pre- and post-payment claims reviews, prior authorization systems such as preadmission reviews wherein services are not covered unless the physician obtains prior approval, and utilization guidelines that serve to limit the volume or frequency of services to a beneficiary. As noted above, most of these activities are already part of medicare's administration. However, the key element here is a coordinated effort. That is, the budget and monitoring functions identify the local problems and issues. Responsibility for addressing these issues then passes on to the PROs, fiscal intermediaries, carriers, and other responsible parties who then refine and implement the controls. In theory, a routine process of problem identification, feedback, and monitoring would serve to direct these efforts where they would be most effective.

The primary advantage of utilization control activities is that they can be focused on individual services and providers. Therefore, they can be used to address specific problems and issues, and can help bridge the gap between the area-wide incentives of a prospective budgeting system and the behavior of individual physicians and providers. For example, such activities could be directed at individual providers, or at groups or classes of services. Some of these activities are currently being used in medicare; for example, PROs routinely conduct preadmission reviews for certain types of hospital cases.

The major disadvantage is the same as the primary advantage--the process is focused on individual services. When a service is relatively infrequent and expensive, such as an inpatient episode or involving exotic technology, the number of cases under review is manageable and may be cost-effective. For many other types of services, including most services covered under Part B, the sheer volume of claims for each service precludes individual case reviews. In this situation, one option is to use computers to screen out the probably reasonable from the clearly unreasonable. Computer screens are now being used, with unknown effect. Application of these screens has raised some concerns in the medical community,since it could results in physicians' professional medical opinions being challenged or overridden by a computer. Administrators face a basic trade-off--while computers can process large numbers of claims cheaply, they can only follow strictly stated rules; while trained personnel can be more sensitive to individual nuances in a case, they are relatively expensive per case reviewed.

If utilization controls are to be widely used, additional data may be required on all claims. Specifically, some basic diagnostic information will have to be provided in order to limit the number of false positives screened out. In addition, there are currently little data on the effectiveness of the computer screens and controls being used. Additional research on what types of utilization screens are most useful and what types of controls work best for different types of services would be desirable.

Utilization control activities could be conducted by a variety of organizations and could be divided up among several, depending on the type of control. For example, prepayment limits would have to be established by the carriers and fiscal intermediaries who process the claims. On the other hand, prior authorization activities and other types of "peer" reviews could be conducted by PROs or other professional groups.

DISCUSSION

This chapter has highlighted many of the technical considerations that would likely need to be addressed if a prospective budgeting system for medicare's physicians' services becomes a viable policy option. Major topics included: using 1) a national or local budget standard, 2) a fixed or rolling baseline 3) adjustments to the budget; data quality and timeliness for budgeting policy; monitoring of area and provider performance; and options for feedback mechanism needed to place the proper incentive in the system.

It should be noted that the potential effects of decisions on any of these topics are dependent on each other and also will depend on how the basic policy options highlighted in chapter 2 are decided. For example, the potential effects of using a national or local budget standard depend on the geographic unit to which the budgets will be applied and the intended purpose and scope of the budget.

The following two chapters present the results of analysis of recent data on medicare physician services. They serve to illustrate and inform many of the points that have been raised in this and other chapters. For example, chapter 5 examines the relative contribution of prices and volume to total expenditure growth by types of services and specialty groups. chapter 6 uses illustrative simulations to look at, among other things, the use of national v. locality specific budget standards.

CHAPTER 5. ANALYSIS OF GROWTH IN EXPENDITURES FOR PHYSICIANS' SERVICES

There are a number of operational issues that would require attention in the design of a prospective budgeting approach to containing growth in medicare Part B expenditures. These include:

- identifying appropriate geographic areas for budgeting purposes
- identifying the need for subbudgets for monitoring and feedback purposes
- ascertaining the quality and timeliness of data available for monitoring and feedback purposes under a prospective budget system
- identifying factors that influence the growth in Part B services in order to set initial and updated budgets, and to determine when excessive growth is due to factors under providers' control and, therefore, requires a response under the system.

In this chapter, we report on an analysis of data on growth in expenditures for physicians' services to illustrate the use of currently available data for addressing these issues.

The chapter examines growth in spending for physician services between 1985 and 1987 as a function of demographic, price, and volume changes. As in other research, volume is measured as the "net residual"--that is changes in expenditures not accounted for by demographic and price changes. The measure of price changes is quite direct, and therefore, the net residual is a good measure of changes in the number and intensity of services per beneficiary. The chapter examines changes in spending by type of procedure, procedure group, specialty group, and geographic area. In addition, the quality and timeliness of data for monitoring prospective budgets is considered.

DESCRIPTION OF THE DATA

The primary sources of data used in this chapter are the 1985, 1986 and 1987 BMAD procedure files.[51] These files contain information on the average reasonable charge (price) and volume of covered Part B services that are reimbursed under the CPR payment methodology. The information is reported for each unique combination of procedure code (including modifiers), provider specialty, place of service, and type of service within each prevailing charge locality. Thus, these data permit an analysis of changes in the price and volume of covered physician services over time by geographic area and physician specialty. The BMAD files do not contain data on all Part B services. Services not represented in the files include outpatient hospital services, rural health clinics, HMO and CMP risk-contracting capitation payments, and home health services covered under Part B.

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[51] The files used in this report are the "edited" versions of these files. That is, HCFA processed the files received from the carriers and deleted records that did not meet certain criteria.

In order to create an analysis file suitable for examination of the growth in physicians' expenditures between 1985 and 1987, it was necessary to address two limitations in the BMAD file:

- The timeliness and completeness of reporting varies by carrier and over time. Reporting may vary because carriers process claims on a more timely basis or because processing time increases for some period. Reporting time also may be related to the increase in the medicare assignment rate, if physicians submit bills to medicare more quickly than do beneficiaries.

- HCFA editing of the data submitted by the carriers, to eliminate inconsistencies of various times, may result in deletion of records on an uneven basis across carriers and over time.

To assess the completeness of the State-level 1985, 1986, and 1987 data, two analyses were conducted. First, carrier data on allowed charges and number of physicians' visits were available for the years of interest for eight States. The ratio of carrier reported allowed charges to BMAD reported allowed charges was calculated for each of these eight States, for 1985, 1986, and 1987. Similarly, the ratio of carrier reported visits to BMAD reported visits was calculated for each State and each year. The ratios for both allowed charges and allowed visits were generally consistent over time for every State except one (Indiana). These results suggest that the completeness of the reported data was consistent over time in each State, making it possible to examine growth in expenditures and volume from one year to the next using the BMAD data.

To verify these results for a larger number of States, a second analysis was conducted. For each State, the ratio of 1985 and 1986 BMAD reimbursements to 1985 and 1986 total reimbursements from the State and county reimbursements files was calculated, in order to determine whether there were changes in the completeness of the BMAD data from 1985 to 1986 that would suggest that the planned analysis would produce inaccurate results.[52] The ratio was reasonably consistent over the 2 years examined, for most States. However, in Colorado, Florida, Indiana, Illinois, and Kansas the ratio of BMAD reimbursements to total reimbursements changed substantially between 1985 and 1986. Consequently, it was decided that analysis of growth in physicians' expenditures for these States, using the BMAD data, was not appropriate.

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[52] It should be noted that the reimbursement data are based on date of approval, while the BMAD data are based on date of service and, therefore, we would not expect complete agreement between the files. The comparison made here was a check for general consistency.

The preparation of the data base for analyzing growth in physicians' expenditures, in the 46 remaining jurisdictions, between 1985 through 1987, involved several additional steps. First, the analysis file was limited to include only physician services reported on records with CPT-4 procedure codes or HCPCS procedure codes with prefixes indicating physician provided services. Anesthesiology services were deleted at this stage due to a determination that the data would not support an analysis of the price and volume of these services. Second, in order to reduce the complexity of the analysis, some aggregation of services by procedure modifier and by place of service was done. This resulted in 26 procedure groups, and 5 place of service alternatives for the analysis. Finally, the data for 1985, 1986, and 1987 were combined into a single data base. Records that did not have a match in all three years by locality, procedure code, physician specialty, type of service, recorded place of service, and recorded modifier were dropped from the data set.

METHODOLOGY

The methodology used to examine growth in physician expenditures and volume between 1985 and 1987 required data on the change in the number of beneficiaries, change in allowed charges, and change in prices. After accounting for the contribution of change in beneficiaries and change in prices to the total increase in allowed charges, the remaining, unaccounted for, growth in allowed charges is due to growth in the number and changes in the mix of services per beneficiary. This is sometimes termed the "net residual," representing total volume changes in the physician services component of medicare.

This approach may be summarized by:

AC = Allowed Charges

B = Enrollees

P = Average Price Per Service

NR = Net Residual

t = Base Year

$$\frac{AC_{t+1}}{AC_t} = \frac{B_{t+1}}{B_t} \times \frac{P_{t+1}}{P_t} \times \frac{NR_{t+1}}{NR_t}$$

Appendix A contains details on the actual formulas used to calculate the price and net residual components of expenditure growth.

The average price for a particular procedure, modifier, place of service, type of service, physician specialty and locality combination is calculated by dividing the total allowed charge for that combination divided by the number of services in that category. The change in price across years is calculated directly, after the average price for each combination is calculated for each year. The average price for each procedure group is calculated based upon a fixed volume of procedures, across the different procedures that have been combined to form the procedure group. Thus, within procedure group, shifts in the mix of procedures do not contribute to changes in average price even when those shifts are substantially toward more or less expensive procedures. Shifts in the mix of procedures within procedure group will be evident in the net residual as greater dollar volume due to either more (or less) procedures or more (or less) expensive procedures.

It should be noted that the interpretation of the net residual factor depends primarily on the specification of the price effect. In this research, the measure of change in price is as close to a "pure" price effect as possible. This was achieved by computing the price factor at an extremely detailed level. Even so, in addition to the usual volume and service mix factors, the net residual in this research also includes the effects of a variety of factors that some may consider "price" effects. Specifically, this measurement of the net residual includes changes in expenditures due to procedure upcoding, changes in practice to a more expensive (or less expensive) mix of specialties, substitution of services resulting in a more expensive mix, and changes in technology.

The approach described will permit the examination of the growth in expenditures and volume of physician services between 1985 and 1987, at several levels:

- National. The total change in expenditures for physician services, nationally, between 1985 and 1986 and between 1986 and 1987, and the contribution of growth in the number of beneficiaries, price increases, and growth in the net residual to this total change in each year, is calculated.

- Type of Service. Changes in price and volume, and their contribution to changes in total expenditures, are calculated by type of service provided.

- Procedure Group. Changes in price and volume, and their contribution to changes in total expenditures, are calculated by procedure group, for selected procedures.

- Physician Specialty. Changes in price and volume, and their contribution to changes in total expenditures, are calculated by physician specialty.

- State. Changes in price and volume, and their contribution to changes in total expenditures, are calculated by State.

In the following section, the results of each of these analyses are presented. The implications of the findings of the analysis of growth in expenditures and volume of physicians' services for the design of a prospective budgeting policy for medicare physicians' services are considered in the final section of this chapter.

FACTORS AFFECTING GROWTH IN PHYSICIAN EXPENDITURES, 1985-1987

A. National Trends

Changes in total allowed charges for physician services between 1985 and 1987, and the contribution of increases in the number of beneficiaries, price, and volume (net residual) are shown in Table 5.1. The total increase in allowed charges was $1.8 billion between 1985 and 1986 and $2.4 billion between 1986 and 1987. This represents an annual increase of 14 percent and 16 percent, respectively. The 1985 to 1986 growth was accounted for by a 1.92 percent growth in beneficiaries, a 2.95 percent increase in price, an 8.66 percent increase in volume (net residual), and a .48 percent increase due to the interaction of growth in the number of beneficiaries, price increases, and net volume. The contribution of the direct effect of the increase in the average price per service to the total change in allowed charges was 21 percent. Increases in the number and changes in the mix of services directly accounted for 61.8 percent of the 1985 to 1986 change in allowed charges.

TABLE 5.1. Changes in Allowed Charges for Physician Services Calendar Years 1985-1987

	1985	1986	Change 85-86	1987	Change 86-87
Allowed charges (millions)	$13,109	$14,945		$17,333	
Change in allowed Charges(millions)			$1,836		$2,388
Percent growth			14.01%		15.98%
Beneficiary growth			1.92%		1.82%
Price effect			2.95%		6.52%
Net residual			8.66%		6.93%
Net residual ($) (millions)			$1,135		$1,036

Source: Congressional Research Service calculations from BMAD procedure files.

Since prices were frozen between 1984 and 1986, the price increase component of the analysis for the 1985 to 1986 period should be considered in that context. The change in average price between 1985 and 1986 includes the 4.15 percent increase for participating physicians that was allowed to go into effect on May 1, 1986; however, only about one-third of all physicians had signed participating physician agreements with medicare in 1986 so only a minority of physicians were granted this increase and the increase was in effect for only 7 months of 1986. In addition, if physicians with higher average allowed charges performed a higher proportion of services in 1986 than in 1985, then this would be reflected in a higher average price in 1986 than in 1985. Also, prices could rise for physicians whose billed charges were below the prevailing charge screen to which the freeze applied.

The 1986 to 1987 change in allowed charges is accounted for by a somewhat different contribution by each component. The direct effect of price increases accounted for 41 percent of the total change, while the increase in volume (net residual) accounted for 43 percent of the total increase. Beneficiary growth and the interaction effect account for 16 percent of total growth in allowed charges between these 2 years. The greater contribution of price to growth in allowed charges is the result of the lifting of the price freeze for all physicians during the 1986 to 1987 period. While participating physicians received a 4.15 percent increase in May 1986, all physicians received a 3.2 percent increase on January 1, 1987. Thus, the 1986 to 1987 period is the initial year during which the impact of lifting of the price freeze is fully observed. The total 6.52 percent direct effect of the price increase is greater than the total price increase allowed with the lifting of the freeze; the methodology for calculating the increase in average price also reflects the price effect of shifts toward provision of services by more expensive physicians.

It is useful to consider the implications of the price freeze for growth in average allowed charges for physicians' services. Net of price effects, the estimates of growth in allowed charges due to volume changes and increases in the beneficiary population were 10.74 percent in 1985 to 1986 and were 8.8 percent in the 1986 to 1987 period. Thus, even with price held constant, expenditures for physicians' services grew substantially on an annual basis.

The contribution of price and volume changes to growth in allowed charges are examined by type of service in table 5.2. This table shows, for a fixed beneficiary population, the percent change in prices and the percent change in volume (net residual) and the total increase in allowed charges due to price and volume, by type of service. The growth rate in allowed charges due to price changes was highest for diagnostic laboratory and radiation therapy services. Volume growth was highest for surgery, assistance at surgery, and consultations.

TABLE 5.2. Change in Price and Volume, and Impact of Changes on Expenditures by Type of Service, 1985-1987

Type of service:	Allowed charges 1985 (in millions)	Percent change in prices (weighted) 1985-1987	Net residual 1985-1987 (percent)	Estimated changes in allowed charges due to prices and net Residual 1985-1987 (in millions)
Medical care	5,079.53	10.72	9.81	$1,096.246
Surgery	3,947.51	7.91	23.96	1,332.886
Diagnostic x-rays	1,265.57	11.53	14.66	352.845
Diagnostic laboratory	1,081.79	17.47	12.31	345.422
Assist. at surgery	643.49	6.38	28.60	236.834
Consultations	331.58	9.93	17.24	95.767
Radiation therapy	226.72	15.35	15.17	74.474
2nd surgical opinion	54.20	12.62	15.73	16.442
Other medical service	478.59	-1.91	11.36	44.188
Total[a]	$13,109.01	9.90	15.94	$3,594.847

[a] Includes the type of service for pneumococcal vaccines that had less than $40 thousand in allowed charges in 1985.

Source: Congressional Research Service from BMAD files.

The type of service that accounted for the largest proportion of the change in allowed charges was surgery which contributed $1.3 billion to the total increase of $3.6 billion between 1985 and 1987. Medical care, which had a below average growth rate in price and volume, contributed $1.1 billion toward the growth in allowed charges, second only to surgery. This is due to the large proportion of total allowed charges accounted for by medical care (39 percent in 1985). Overall, increases in prices, by type of service, had no consistent pattern between 1985 and 1987, due in part to the effects of the lifting of the fee freeze during the study period.

B. Growth in Allowed Charges by Procedure Groupings

While expenditures and volume have been increasing at a rapid rate, there is substantial variation in the rate at which the price and volume of individual services are growing. To examine how prices and volume have been increasing at differential rates by procedure, the set of all procedure codes (over 7,000 separate codes) were collapsed into 71 groups. Changes in price and volume then were estimated for each of these procedure groups.

These data suggest a wide range of variation in prices and volume increases across physician services. For example, for the 71 procedure groups, the smallest price increase between 1985 and 1986 was 0.59 percent while three procedure code groups had price increases over 10 percent. The range of price increases between 1986 and 1987 when the freeze was lifted is even greater. The increases in prices for the procedure groups between 1985-86 and 1986-87 were not highly correlated (correlation coefficient=0.1056). That is, procedure code groups with high price increases between 1985 and 1986 did not necessarily have a high increase between 1986 and 1987. Again, this low correlation may be due to the lifting of the fee freeze for all physicians on January 1, 1987.

For a prospective budgeting system, the importance of differential price increases is due to their effect on overall expenditures. Table 5.3 displays for a fixed population of beneficiaries, changes in price between 1985 and 1987, and estimated impact on allowed charges, for the 25 procedure groups for which change in price had the greatest impact on allowed charges. As might be expected, procedure groups that account for the largest proportions of allowed charges are the most important contributors to increases in expenditures due to increases in price. For example, hospital visits, which had below average increases in price in both 1986 and 1987 but which had the second highest allowed charges in 1985, accounted for nearly 13 percent of the total effect of prices of changes on expenditures. It should also be noted that the effects of price increases on allowed charges are concentrated in a relatively small number of procedure groups. Five groups account for nearly half of the total impact of prices on allowed charges over the study period.

TABLE 5.3. Change in Prices and Impact of Changes in Prices on Expenditures for Selected Procedure Groups, 1985-1987

Procedure groups:	Weighted percent change in prices		Allowed charges in 1985 (in millions)	Estimated change in expenditures due to prices 1985 to 1987 (in millions)
	1985 to 1986	1986 to 1987		
Visits	3.00%	7.68%	$1,964.9	$214.5
Hospital visits	2.47%	5.86%	1,895.3	160.5
Diagnostic radiology	4.24%	6.57%	868.7	96.3
Automated tests (lab)	1.39%	45.29%[a]	134.5	63.7
Musculoskeletal surg.	2.60%	6.41%	658.4	60.4
Consultations	2.70%	7.23%	524.2	53.0
GI endoscopies	3.58%	8.83%	367.2	46.7
Emergency care	4.49%	8.55%	287.8	38.6
CAT scans	5.88%	9.49%	211.7	33.7
Radiotherapy	9.20%	9.34%	167.1	32.4
Integumentary surg.	1.71%	5.84%	411.6	31.5
EKGs	2.03%	9.71%	258.6	30.9
Other digest sys surg.	1.88%	5.34%	419.5	30.7
Surgical pathology	6.92%	11.68%	144.4	28.0
Coronary bypass surg.	3.34%	6.39%	250.2	24.9
Other eye surgery	2.18%	6.73%	253.0	22.9
Nursing home visits	3.26%	8.89%	148.4	18.4
Prostatectomies	2.16%	5.50%	217.6	16.9
Psychiatric visits	7.57%	5.24%	121.7	16.1
Cardiac catheterization	5.60%	6.73%	122.3	15.5
Ophthalmology Visits	4.15%	5.57%	150.9	15.0
Cataract surgery	2.66%	-0.90%	765.6	13.3
Arteries/veins surg.	1.77%	5.91%	158.5	12.3
Nervous system surg.	3.02%	5.99%	124.7	11.5
Other cardio serv.	11.36%	5.71%	59.1	10.5
All procedures	2.95%	6.52%	13,109.0	1,267.0

[a] This unusually high increase in price may be due to an unknown change in reporting the number of services billed for automated laboratory services. While total allowed charges for automated tests increased over the study period at typical rates, the number of reported covered services actually fell between 1986 and 1987, resulting in the estimate of this extremely high change in price.

Source: Congressional Research Service calculations from BMAD files.

Table 5.3 also suggests the impact of pricing policies on expenditures. For example, while cataract surgery ranks fourth in total allowed charges, its prices were restrained by the freeze in 1985 and 1986, and then lowered by the inherent reasonableness reduction on January 1, 1987. As a result, it ranked only 22nd in terms of the overall impact of its price increases on expenditures. On the other hand, both the radiotherapy and surgical pathology procedure groups include services that are rendered by radiologists and pathologists, specialties that benefited from the special update in customary charges for physicians who came off compensation agreements with hospitals between February 1, 1985 and December 31, 1986. As a result, the prices of these procedure groups increased by above average amounts.

While increases in price for the 71 procedure groups were not consistent over the study period, increases in volume, measured by the net residual, were relatively consistent (correlation coefficient=0.513). Table 5.4 shows the estimated impact on allowed charges of changes in volume and mix of services between 1985 and 1987. That is, given 1985 prices and number of beneficiaries, table 5.4 lists the 25 procedure code groups with the greatest impact on growth in allowed charges between 1985 and 1987.[53] As in table 5.3, procedure groups with highest total allowed charges in 1985 were among the most important contributors to increases in expenditures. Also, the top five groups account for nearly the same proportion (about half) of the overall impact of volume on expenditures as the top five groups with respect to price. The primary difference between table 5.3 and table 5.4 is in the absolute magnitude of the effects; that is, during this period (which includes some of the fee freeze), changes in the volume and mix of services had a much greater impact on expenditures than did prices.

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[53] Given the high correlation in growth in volume over the study period, table 5.4 does not show changes in volume separately for each year.

TABLE 5.4. Change in Net Residual, and Impact of Change in Net Residual on Expenditures for Selected Procedure Groups, 1985-1987

Procedure groups:	Allowed charges 1985 (in millions)	Net residual 1985-1987	Estimated effect of net residual on expenditures (in millions)
Cataract surgery	$ 765.64	60.26%	$461.40
GI endoscopies	367.22	42.73	156.92
Visits	1,964.87	7.69	151.06
Consultations	524.23	17.20	90.17
Diagnostic radiology	868.71	10.32	89.61
Integumentary surg.	411.60	20.45	84.18
Coronary bypass surg.	250.24	32.37	81.01
Other eye surgery	253.02	31.92	80.76
Ophthalmology visits	150.86	46.69	70.43
Chemistry (lab)	195.40	35.49	69.34
Emergency care	287.84	23.26	66.95
CAT scans	211.67	31.29	66.23
Musculoskeletal surg.	658.37	8.14	53.59
Cardiac cath.	122.35	42.20	51.63
Ekgs	258.57	17.00	43.95
Ophthalmology services	70.19	55.85	39.20
Hospital visits	1,895.31	2.07	39.14
Other cardiography	42.64	74.92	31.94
Radiotherapy	167.15	18.42	30.79
Other cardio serv.	59.09	43.82	25.89
Nervous system surg.	124.66	19.67	24.52
Surgical pathology	144.37	15.51	22.39
Vascular inject procs	59.93	34.94	20.94
Per. trans. angioplasty	13.95	149.78	20.89
Other digest sys surg.	419.53	4.91	20.61
Transurethral surgery	55.28	36.45	20.15
All procedures	$13,109.01	15.94%	$2,089.58

Source: Congressional Research Service calculations from BMAD data.

C. Growth in Allowed Charges by Physician Specialty

Table 5.5 shows the distribution of the impact of price and net residual factors on expenditures by specialty. Ophthalmologists accounted for the largest share of increases in allowed charges, nearly 20 percent of the total. This is consistent with the changes in price and volume of procedure code groups that were likely to have been performed by ophthalmologists; the four ophthalmology procedure code groups (cataract surgery, other eye surgery, and ophthalmology visits and services) are among the top 25 procedure groups in tables 5.3 or 5.4, or both. In terms of volume, the number of services billed by gastroenterologists grew almost as much as ophthalmologists' services (40.4 percent over the 2 years). This growth was due almost entirely to gastrointestinal (GI) endoscopies, which accounted for nearly 60 percent of the total allowed charges by this specialty in 1985. In addition, the volume (net residual) of GI endoscopies billed by this specialty increased by 65 percent between 1985 and 1987. Overall, growth in allowed charges due to price and volume effects was nearly equally divided between medical and surgical specialists--accounting for 43 and 39 percent of the total, respectively.

TABLE 5.5. Change in Price and Volume, and Impact of Changes on Expenditures by Physician Specialty, 1985-1987

Specialty groups:	Allowed charges 1985 (in millions)	Percent change in prices (weighted) 1985-1987	Net residual 1985-1987 (percent)	Estimated change in allowed charges due to prices and net residual 1985-1987 (in millions)
General practice	$1,270.41	11.16%	1.52%	$163.329
Internal medicine	2,414.78	9.80	9.26	482.279
Multi-spec. clinics	755.93	10.88	5.93	131.907
Cardiology	663.11	11.59	31.35	308.789
Gastroenterology	269.24	9.96	40.41	146.456
Neurology	167.35	10.19	20.08	54.076
Dermatology	230.73	7.43	21.67	70.870
Psychiatry	175.12	12.37	18.84	58.734
Pulmonary medicine	154.31	10.49	32.67	71.882
Other medical spec.	152.57	9.33	23.03	52.660
General surgery	1,127.38	8.89	6.79	183.578
Ophthalmology	1,413.27	6.90	40.74	712.917
Orthopedics	719.31	9.70	8.91	140.052
Thoracic surgery	458.61	8.49	17.82	127.604
Urology	519.74	9.78	12.37	121.396
Ob/gyn	103.00	8.91	10.58	21.044
Otolaryngology	155.26	8.71	11.99	33.761
Neurosurgery	115.05	9.94	9.65	23.644
Other surgical spec.	87.39	9.05	21.79	28.680
Radiology	1,113.30	12.88	15.30	335.746
Pathology	119.37	17.48	19.89	48.764
Independent lab	365.88	24.48	14.19	154.207
All specialties[a]	$13,109.01	0.10	15.94	$3,594.847

[a] Includes anesthesiology and other miscellaneous specialties not separately listed

Source: Congressional Research Service calculations from BMAD files.

Changes in price and volume over the study period were more highly correlated by specialty than by procedure code. By specialty, changes in price between 1985-86 and 1986-87 had a correlation coefficient of 0.4947. That is, specialties with relatively high increases in price between 1985 and 1986 also had relatively high increases in price between 1986 and 1987. Changes in volume were even more highly correlated, with a correlation coefficient of 0.8260.

D. Growth in Allowed Charges by State

The geographic areas selected for prospective budgeting can have substantial implications for other design elements of the system. To examine the issue of geographic variation in allowed charges and changes over time in allowed charges, the 1985 to 1987 growth in allowed charges was disaggregated by State and the contribution of enrollee growth, price increases, and change in volume (net residual) to total growth in allowed charges was calculated for each State. Percent changes in beneficiary population, price, the net residual, and allowed charges between 1985 and 1987 are shown in Table 5.6. Table 5.7 presents average allowed charges per beneficiary by State and the contribution of changes in price and volume on growth in allowed charges per beneficiary.

The percent change in beneficiaries indicated in Table 5.6 shows a wide range between 1985 and 1987--from a low of 1.07 percent in New York to a high of 15.02 percent in Alaska---with the national population of medicare beneficiaries increasing by 3.77 percent over this time period. Changes in average price across the States ranged from zero in Maryland and Michigan up to 25 percent in Ohio and 33 percent in West Virginia; the national average increase in price was 9.9 percent between 1985 and 1987. There was even more variation by State in the volume growth with six States showing a decline in volume (net residual) between 1985 and 1987 and fourteen having increases in volume greater than 20 percent. Louisiana and Maryland both had volume growth of more than 32 percent.

TABLE 5.6. Percent Changes in Enrollees, Prices and Net Residual Factors, by State, 1985-1987

State	Change in enrollees	Change in price	Change in net residual	Change in allowed charges
Alabama	3.46%	17.22%	18.36%	43.53%
Alaska	15.02	10.45	4.83	33.17
Arizona	9.25	13.62	-2.35	21.22
Arkansas	2.35	6.20	23.68	34.44
California	5.18	5.40	12.13	24.32
Connecticut	2.64	9.38	23.41	38.55
Delaware	6.08	12.28	19.76	42.63
Dist. Of Columbia	0.67	11.88	26.07	42.00
Georgia	4.73	16.15	13.05	37.51
Hawaii	9.81	7.24	-10.67	5.19
Idaho	4.97	7.67	15.23	30.24
Iowa	1.97	5.89	21.42	31.10
Kentucky	3.22	8.98	27.84	43.80
Louisiana	6.74	6.21	32.42	50.12
Maine	3.23	10.87	18.21	35.30
Maryland	4.23	-0.09	32.49	37.96
Massachusetts	1.33	11.17	2.55	15.52
Michigan	3.29	-0.45	29.15	32.79
Minnesota	2.66	12.91	-9.01	5.47
Mississippi	2.83	9.76	12.98	27.52
Missouri	2.18	7.23	22.58	34.32
Montana	4.63	2.80	15.26	23.97
Nebraska	1.69	6.68	23.62	34.11
Nevada	13.45	13.99	-7.38	19.76
New Hampshire	3.76	8.69	18.59	33.75
New Jersey	2.45	10.52	13.71	28.75
New Mexico	7.43	9.03	9.55	28.32
Mew York	1.07	9.28	18.69	31.10
North Carolina	5.97	10.24	16.57	36.17
North Dakota	2.83	6.73	11.62	22.51
Ohio	3.87	25.38	8.85	41.75
Oklahoma	2.78	8.27	17.98	31.29
Oregon	5.13	6.43	-6.05	5.12
Pennsylvania	2.76	16.18	19.21	42.33
Rhode Island	2.17	19.96	-7.08	13.89
South Carolina	6.78	11.43	6.40	26.60
South Dakota	2.58	8.49	18.88	32.30
Tennessee	3.80	9.97	26.26	44.13
Texas	5.27	8.06	25.62	42.89

TABLE 5.6. Percent Changes in Enrollees, Prices and Net Residual Factors, by State, 1985-1987--Continued

State	Change in enrollees	Change in price	Change in net residual	Change in allowed charges
Utah	6.34	3.07	21.15	32.79
Vermont	2.39	11.43	23.22	40.59
Virginia	5.08	11.70	15.92	36.08
Washington	5.93	13.89	15.55	39.40
West Virginia	2.11	32.58	4.16	41.02
Wisconsin	2.87	4.80	12.73	21.53
Wyoming	5.36	6.02	11.75	24.82
National	3.77%	9.90%	15.94%	32.23%

Source: Congressional Research Service calculations from BMAD files.

Table 5.7 presents the total percent change in expenditures per beneficiary over the 1985 to 1987 period. Only two States, Hawaii and Oregon, indicate a decrease in expenditures per beneficiary over this period. The mean change in expenditures per beneficiary was 27.4 percent and the maximum increase was 40.6 percent, in Louisiana. Other States with exceptionally high rates of increase in expenditures per beneficiary were Alabama, Kentucky, Pennsylvania, Tennessee, Vermont, and West Virginia. With the exception of Pennsylvania, the States with the highest rates of increase in expenditures per beneficiary had below average levels of expenditures in 1985.

The analysis of the State patterns of expenditures for physicians' services raises concerns about the data and its consistency over time. The correlation coefficients in the year-to-year price and volume (net residual) were only 0.088 and 0.01 respectively. Changes in allowed charges and allowed charges per beneficiary by State also appeared random--with correlation coefficients of 0.034 and 0.116, respectively. Only changes in the number of beneficiaries by State were highly correlated.

TABLE 5.7. Changes in Allowed Charges Per Beneficiary by State 1985-1987

State:	Spending per capita 1985	Change in price 1985-87	Total Change in net residual 1985-87	spending per capita 1985-87	spending per capita 1987
Alabama	473.50	17.22%	18.36%	38.73%	656.90
Alaska	458.52	10.450	4.830	15.780	530.88
Arizona	657.12	13.620	-2.350	10.950	729.07
Arkansas	451.47	6.200	23.680	31.350	593.01
California	732.52	5.400	12.130	18.190	865.78
Connecticut	467.29	9.380	23.410	34.980	630.77
Delaware	446.59	12.280	19.760	34.460	600.50
Dist. Of Columbia	865.54	11.880	20.150	34.420	1,163.46
Georgia	508.42	16.150	13.050	31.300	667.54
Hawaii	587.29	7.240	-10.670	-4.200	562.60
Idaho	324.83	7.670	15.230	24.070	403.00
Iowa	286.41	5.890	21.420	28.570	368.24
Kentucky	310.73	8.980	27.840	39.320	432.90
Louisiana	509.99	6.210	32.420	40.640	717.25
Maine	313.49	10.870	18.210	31.060	410.86
Maryland	556.14	-0.090	32.490	32.370	736.16
Massachusetts	569.02	11.170	2.550	14.000	648.69
Michigan	586.81	-0.450	29.150	28.560	754.41
Minnesota	363.73	12.910	-9.010	2.740	373.69
Mississippi	404.55	9.760	12.980	24.010	501.69
Missouri	450.22	7.230	22.580	31.450	591.81
Montana	355.87	2.800	15.260	18.490	421.67
Nebraska	331.39	6.680	23.620	31.880	437.04
Nevada	745.30	13.990	-7.380	5.570	786.80
New Hampshire	354.24	8.690	18.590	28.900	456.62
New Jersey	608.48	10.520	13.710	25.670	764.69
New Mexico	381.29	9.030	9.550	19.440	455.42
Mew York	615.77	9.280	18.690	29.700	798.68
North Carolina	434.93	10.240	16.570	28.500	558.89
North Dakota	538.76	6.730	11.620	19.130	641.84
Ohio	437.99	25.380	8.850	36.470	597.71
Oklahoma	431.44	8.270	17.980	27.730	551.09
Oregon	461.05	6.430	-6.050	-0.010	461.03
Pennsylvania	545.46	16.180	19.210	38.500	755.47
Rhode Island	606.52	19.960	-7.080	11.470	676.06
South Carolina	334.35	11.430	6.400	18.560	396.41
South Dakota	395.23	8.490	18.880	28.970	509.73
Tennessee	481.81	9.970	26.260	38.860	669.03
Texas	557.43	8.060	25.620	35.740	756.66
Utah	359.48	3.070	21.150	24.870	448.87

TABLE 5.7. Changes in Allowed Charges Per Beneficiary by State 1985-1987

State:	Spending per capita 1985	Change in price 1985-87	Total Change in net residual 1985-87	spending per capita 1985-87	spending per capita 1987
Vermont	318.37	11.430	23.220	37.300	437.12
Virginia	409.80	11.700	15.920	29.490	530.66
Washington	500.36	13.890	15.550	31.600	658.46
West Virginia	328.24	32.580	4.160	38.100	453.32
Wisconsin	399.69	4.800	12.730	18.130	472.16
Wyoming	252.11	6.020	11.750	18.470	298.67
National	524.69	9.900	15.940	27.390	668.41

The low year-to-year correlation in price and volume by State may be due to several factors. First, there may be reporting problems, by State, that affect the consistency of data over time. Claims for each State are processed and reported by different carriers. Thus, reporting by State will have some variation in the completeness of the data. Other changes in claims processing (e.g., changes in coding) also may introduce a component of randomness in the observed trends. The analysis of the completeness of the BMAD files, using files from eight carriers as a baseline, did not suggest that the variation in year-to-year reporting accounted for substantial variation in the files by year. If these eight States are representative of the other 43 jurisdictions, then reporting variations should not explain the randomness observed by State. It is possible, however, that the seven States for which carrier data were available are not representative and that other carriers were much less consistent in their reporting over the 1985 to 1987 period.

It also is possible that there are substantial random variations in price and volume, over time, by State. It would require a longer time trend, as well as further investigation of reporting patterns by State, to establish the underlying trends in price and volume at the subnational level with any confidence.

DISCUSSION: IMPLICATIONS FOR DESIGN OF A PROSPECTIVE BUDGET APPROACH TO CONTROLLING MEDICARE PHYSICIAN EXPENDITURES

This analysis was undertaken to provide information for designing, implementing, and monitoring a prospective budget approach to controlling growth in medicare expenditures for physician services. The results described above suggest a number of considerations for developing the prospective budget approach to controlling costs.

First, during the period examined, price was substantially controlled for over half of the period and then allowed to increase by only a small percent in the latter half of the period. Despite the price freeze, total allowed charges for physician services increased by 14 percent between 1985 and 1986, with 15 percent of the increase directly accounted for by increase in the number of beneficiaries, 21 percent price increases, and 62 percent directly accounted for by increase in the net residual. The net residual includes changes in volume and shifts in case mix (due, for instance, to greater requirements for services by an increasingly older medicare population), and shifts toward a more costly mix of services (due to changing practice patterns and new technologies). The substantial contribution of the net residual to total increase in allowed charges suggests that a policy that is directed at price control, only, is unlikely to be effective at containing total expenditures for physician services.

The examination of the contribution of specific procedures and physician specialties to growth in physician expenditures reveals a pattern that is of considerable interest for development of a prospective budgeting policy. A relatively small number of procedures that increased rapidly in volume contribute disproportionately to the total growth in expenditures between 1985 and 1987. While the net residual grew 16 percent for all procedures, it increased by over 40 percent for cataract surgery, GI endoscopies, ophthalmology visits, cardiac catheterization, ophthalmology services, other cardiography, other cardiology services, and per. trans. angioplasty. Given these patterns of increase in expenditures, it is not unexpected that ophthalmologists accounted to the largest proportion of the growth in allowed charges between 1985 and 1987--20 percent of the total. Cardiologists and radiologists were responsible for 8.5 and 9.3 percent of the growth in allowed charges, respectively, over the same period. Thus, three specialties, providing very specialized services accounted for over a third of the growth in total allowed charges between 1985 and 1987.

The findings from the analysis of procedures and specialty contributions to increases in expenditures for physicians' services over time suggest that it may be useful to consider developing subbudgets under a prospective budget system, focusing on either specific procedures or specialties, for use in monitoring and feedback. If a few procedures and specialties account for a disproportionate amount of the increase in allowed charges, and this is not a short run phenomenon due to response to new technologies, then a budget policy without the capability for subbudget monitoring could result in the dissemination of penalties and feedback across all physicians, rather than focusing on the subgroups that are of particular concern. This could impose undue burdens upon physicians who are controlling volume growth and could dilute the strength of the penalty imposed on those who account for much of the problem.

The examination of variations in patterns of growth in allowed charges by State suggests that there either is a surprisingly large variation in patterns by State, both cross-sectionally and over time, or that there are problems with carrier reporting of data. If there is substantial variation over time in expenditures, price, and volume by State, this would make setting equitable budgets difficult, unless further research can identify the factors that account for this variation and incorporate, if appropriate, these factors into the prospective budget. However, it seems equally likely that the apparent randomness is due to variations in reporting of data by carrier and over time. If so, this would suggest that attention should be directed toward improving reporting consistency, across carriers, and by carriers over time, prior to using these data to set geographic budgets for medicare physician expenditures.

Finally, it is useful to point out that this analysis was being done in early 1989, using 1987 data that had just become available for use. In addition, as has been noted throughout this chapter, the data for all three years had problems that made analysis inappropriate for several States and that made interpretation of the data difficult. The evidence from other countries suggests that an effective prospective budget policy requires timely and accurate data for setting budgets and, especially, for monitoring and feedback purposes. If a prospective budget approach were to be implemented, it would be most effective if the budget oversight agency and physicians, by specialty, geographic area, and individually were provided information on their performance relative to the budget on a quarterly or semi-annual basis. This would permit mid-course assessments, corrections and adjustments to be made that would increase the likelihood that the policy would lead to changes in physician behavior and to slower growth in expenditures over time. At present, the data system does not have the capability to provide timely and accurate feedback and this lack could have significant implications for the feasibility of implementing an effective prospective budgeting policy in the short-run.

CHAPTER 6. ILLUSTRATIVE SIMULATIONS OF PROSPECTIVE BUDGETS

This section presents the results of several illustrative simulations of prospective budgets. Results are presented at the national, State, and county level.[54] The basic method was to estimate a budget for a particular year and compare actual reimbursements in that year to the budget. The purpose of the simulations is to highlight some of the issues that likely would need to be considered in designing such a system, rather than suggest a particular strategy. These issues include the measurement and timeliness of actual reimbursement data; the importance of the data and methods underlying the prospective budget; the implications of the geographic level of the budget standard (national v. local) and the level at which it is applied; and the importance of the standard used to judge when an area has exceeded its budget.

DATA AND METHODS

Five types of datasets (for years 1985, 1986, and 1987) were used to create the database for the simulations: medicare reimbursement files, medicare enrollment files, the Average Annual Per Capita Cost estimates (county level) files, a county level socio-demographic file, and a county--prevailing charge locality crosswalk file. These data sets were merged into a single county-level analysis file.

We used the AAPCC estimates of the HCFA actuaries to create the budgets. The AAPCC are the only official county-level projections of the costs of medicare fee-for-service beneficiaries. HCFA uses the AAPCC to set capitation rates for HMOs that are paid a monthly fixed amount for providing health services to medicare enrollees. For each county an AAPCC is estimated separately for aged, disabled, and end-stage renal disease beneficiaries.[55]

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[54] Simulations were also performed at the prevailing charge level but results paralleled those at the county level, and so are not presented.

[55] Section 1876(a)(1)(A) of the Social Security Act requires the Secretary to determine annually a per capita rate of payment for each class of individuals who are enrolled in HMOs and competitive medical plans with risk contracts under Medicare. The per capita rate of payment for each class of individuals is equal to 95 percent of the average annual per capita cost (AAPCC) for that class of individuals. The AAPCC is a prospective estimate of the average per capita amount that would be payable for a similar group of individuals if services were provided in the fee-for-service sector. The AAPCC is determined in four steps: national per capita costs are projected; geographic adjustments are made to reflect historical differences; county level costs are adjusted to reflect only the fee-for-service sector; the fee-for-service estimates are disaggregated into demographically defined component parts.

The simulations used both a local standard based on county-level AAPCC estimates and a single national standard based on a weighted average of the county-level AAPCC estimates. The former approach 1) created county-level budgets using the AAPCC estimates 2) created State-level budgets by appropriately weighting the county-level AAPCC, and 3) created a national budget by a parallel method. The latter approach created a national per capita prospective budget by weighting the county AAPCC estimates by the appropriate county enrollment figures, summing across localities and dividing the result by national enrollment. Local budgets (State and county) were determined by multiplying the national per capita budget by local enrollment.

The budgets created from the AAPCC projections illustrate the issues that need to be addressed in creating and monitoring the budgets, rather than describe a desirable budget method. The AAPCC estimates have come under considerable criticism.[56] Of particular concern for using the AAPCC for purposes of setting prospective budgets is that they are based on historical expenditure patterns. If one purpose of a budget is to change historical patterns, using the AAPCC is problematic. Also, previous research has indicated that even though the AAPCC estimates are required to represent only 95 percent of the actual estimate of annual per capita costs, they have run considerably above actual spending. Our research into this indicates that 1) this problem is more acute for Part A than Part B, and 2) as the AAPCC methodology has been refined, the estimates more closely track spending. For this reason, much of the simulation analysis focuses on 1987.

The basic method for creating the budgets was straight forward and parallel for each geographic level. First the risk contracting enrollees were subtracted from the total enrollment estimate. Second, each AAPCC (or USPCC) estimate was weighted by the appropriate enrollment figure (aged, disabled, ESRD) and inflated to equal 100 percent of the estimated per capita cost.[57] The weighted figures were summed across enrollment categories to yield a locality-specific budget. The national standard was determined by summing these budgets across all jurisdictions and dividing through by a national enrollment count.

The results of our data analysis are presented in three sections. The first examines changes in actual reimbursements from 1985 to 1987. The second examines changes in weighted AAPCC estimates from 1985 to 1987. The final section compares the illustrative prospective budgets to actual reimbursements.

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[56] Nelson, Lyle and Randall Brown. *The Impact of the Medicare Competition Demonstration on the Use and Cost of Services.* Report prepared for the Health Care Financing Administration, Washington, D.C.: Mathematica Policy Research, Inc., Jan. 1988.

[57] Recall that for purposed of setting risk-contracting capitation payment, the AAPCC is set to 95 percent of the fee-for-service per capita cost.

This analysis focuses on 1987, since reimbursement data were most stable for that year.

CHANGES IN ACTUAL REIMBURSEMENTS

As noted throughout this paper, effective implementation of a prospective budget system depends heavily on accurate and timely monitoring of the system. At some point in the budget cycle, expenditures must be compared to the budget in order to trigger whatever feedback mechanisms are in place. Two questions arise with respect to medicare reimbursement data that could be used to monitor a prospective budget system--how timely are the data and how accurate are the data? In addition, an examination of trends in reimbursements may inform decisions on prospective budget issues such as the appropriate geographic level for a budget.

A. Timeliness

Currently HCFA reimbursement data is on a 2 year cycle. That is, the official reimbursement data are available in the spring following the close of the calendar year after the accounting year. For example, claims for reimbursement for CY 1987 were processed until December 31, 1988. After checking and compiling, the data were available by late April of 1989. This delay is somewhat inevitable since claims for reimbursement may be submitted up to 1 year after a service is provided. This type of delay poses significant problems for timely monitoring of a prospective budget system.

If monitoring were to take place so that feedback mechanisms could be triggered at the start of a new year, or during the course of a year, some method would need to be developed to estimate actual reimbursements from incomplete data. This would be more difficult the lower the level of geographic and subregion budgets. Our analysis has demonstrated considerable instability in reimbursements from year-to-year, at least as reported in the HCFA data files. This could make accurate estimation of reimbursements from incomplete data difficult. At the least, research is needed into methods for obtaining timely, complete reimbursement information.

B. Changes in Reimbursements and Accuracy of Data

Table 6.1 presents changes in reimbursements[58] for the U.S. and by State for 1985 through 1987. Nationally, reimbursements grew at an average annual rate of 16 percent, divided roughly equally between 1985-1986 (15.6 percent) and 1986-1987 (16.3 percent).

At the State level there was considerable consistency in average annual rates of change, but there were also conspicuous outliers. In addition, the year to year changes showed much more volatility. Over two-thirds of the States had average annual rates of change within 5 percentage points of the national average of 16 percent. At the extremes, however Rhode Islands' average annual growth rate was -4.3 percent while Louisiana's was 33.1 percent (over twice the national growth rate. Eight States (Kentucky, Louisiana, Maine, Oklahoma, Florida, Mississippi, Vermont, and Washington) showed average annual growth rates more than 25 percent above the national average. Year to year changes show variations for some States that are unlikely to represent actual changes in beneficiaries, price, or volume/intensity. These growth rates probably reflect, in part, differences in carriers' abilities to adapt to new reporting requirements or other data problems. Nebraska went from having the lowest growth rate for 1985-1986 (-7.9 percent) to the highest growth rate for 1986-1987 (+62.0 percent). Massachusetts exhibited the opposite trend, having the highest growth rate for 1985-1986 (49.1 percent) and the lowest for 1986-1987 (-18.9 percent). These States illustrate the potential problems for monitoring a prospective budget system with data that may be inconsistent across geographic areas (and that may vary from year to year for administrative reasons).

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[58] The State and County Reimbursement Files compiled by HCFA report claims by date of approval, rather than date of service. This will have the effect of highlighting variations in reporting problems experienced by different carriers at different points in time. For example, as new reporting requirements are implemented by HCFA, some carriers will adapt more quickly, and a higher percentage of their claims will be approved during the year in which the service took place that for another carrier who adapts more slowly. A complete file that bases reimbursements on date of service should smooth out some of the problems noted in the data presented here--but such a file was not available to us at the time of the study. It should be noted that reimbursements in the BMAD data are based on date of service but the cutoff date for inclusion in the file is 3 months after the end of the calendar year, and, therefore, the data are incomplete.

TABLE 6.1. Changes in Total Medicare Part B Reimbursements by State 1985-1987

State	Change In total Part B reimbursements 1985-1986	Change In Total Part B reimbursements 1986-1987	Change In total Part B reimbursements 1985-1987	Average annual rate Of change Part B 85-87
United States	15.6	16.3	34.5	16.0
Alabama	26.6	17.7	49.1	22.1
Alaska	14.1	18.5	35.3	16.3
Arizona	11.6	17.1	30.7	14.3
Arkansas	15.2	15.7	33.2	15.4
California	12.2	9.6	22.9	10.9
Colorado	33.5	-6.6	24.6	11.6
Connecticut	14.7	12.9	29.5	13.8
Delaware	12.4	16.7	31.1	14.5
Dist. of Columbia	21.0	2.8	24.4	11.5
Florida	15.4	34.8	55.6	24.7
Georgia	17.2	15.8	35.8	16.5
Idaho	24.6	16.3	44.9	20.4
Illinois	11.4	10.4	22.9	10.9
Indiana	39.3	0.3	39.7	18.2
Iowa	-7.1	37.0	27.3	12.8
Kansas	19.7	9.8	31.4	14.6
Kentucky	45.5	21.2	76.2	32.8
Louisiana	38.4	27.9	77.0	33.1
Maine	26.2	26.2	59.3	26.2
Maryland	15.5	9.6	26.6	12.5
Massachusetts	49.1	-18.9	20.9	10.0
Michigan	20.3	6.0	27.5	12.9
Minnesota	-4.7	-0.4	-5.0	-2.6
Mississippi	2.3	48.7	52.2	23.4
Missouri	20.3	15.4	38.8	17.8
Montana	24.1	9.0	35.3	16.3
Nebraska	-7.9	62.0	49.1	22.1
Nevada	13.0	13.8	28.6	13.4
New Hampshire	32.7	12.7	49.5	22.3
New Jersey	17.1	9.3	28.0	13.1
New Mexico	21.9	7.5	31.1	14.5
New York	-3.0	34.6	30.5	14.2
North Carolina	18.5	21.3	43.7	19.9
North Dakota	12.4	8.2	21.7	10.3
Ohio	21.8	20.1	46.3	20.9

TABLE 6.1. Changes in Total Medicare Part B Reimbursements by State 1985-1987--Continued

State	Change In total Part B reimbursements 1985 -1986	Change In total Part B reimbursements 1986-1987	Change In total Part B reimbursements 1985-1987	Average annual rate Of change Part B 85-87
Oklahoma	37.9	19.2	64.4	28.2
Oregon	4.2	6.0	10.4	5.1
Pennsylvania	11.8	19.2	33.3	15.5
Rhode Island	1.4	-9.7	-8.4	-4.3
South Carolina	-4.2	44.9	38.8	17.8
South Dakota	19.3	9.7	30.9	14.4
Tennessee	30.6	10.6	44.4	20.2
Texas	25.0	17.0	46.3	20.9
Utah	14.4	22.3	39.9	18.3
Vermont	27.5	21.2	54.5	24.3
Virginia	15.4	15.7	33.4	15.5
Washington	7.6	42.8	53.7	24.0
West Virginia	20.4	15.3	38.8	17.8
Wisconsin	10.7	12.0	24.0	11.4
Wyoming	19.0	21.1	44.1	20.0

Source: Table prepared by Congressional Research Service based on merged 1985-1987 State and County Reimbursement Files provided by Health Care Financing Administration. Data from Hawaii not included due to data inconsistencies. Reimbursements reflect date of approval of claim, not date of service. Estimates reflect records received by HCFA by December 31 of year following the year reported in table. For example, 1985 reimbursements reflect all claims approved during 1985 and received by HCFA by December 31, 1986.

At the county level, as would be expected, there was even greater variation in growth rates. Table 6.2 summarizes changes in reimbursements by county. On the average, counties had growth rates above that of the nation as a whole. This was due to generally higher growth rates in the more numerous, but less populated (in terms medicare enrollment) counties. Examination of the county demographic characteristics indicates that high growth counties tended to be small, rural, and concentrated in the south and southwester regions of the country. While this result is not intuitive it reflects, in part, the wide variations in expenditures that would be expected in very small counties, where a few extraordinary bills in a year can radically effect year-to-year growth rates. In fact, counties with the lowest growth rates also tended to be small and rural, though not so concentrated in the South. The natural variation in reimbursements for small counties illustrates a point made earlier on one of the risks of a budget set at geographic level as small as the county. Another contributor to the extremes in growth rates seen in table 6.2, is probably reporting problems of the carriers, and other data problems. On the other hand, it should be noted that 50 percent of all counties had average annual growth rates within 5 percentage points of the national average for all counties.

Table 6.2. Summary of Growth in Total Medicare Part B Reimbursements by County: 1985-1987

	Percent change 1985-1986	Percent change 1986-1987	Percent change 1985-1987	Average annual growth rate
County average	19.9%	19.0%	41.7%	18.7%
5% with growth greater than	47.6	50.5	52.6	33.1
5% with growth less than	-7.7	-3.3	12.2	5.9
1% with growth greater than	62.5	74.4	100.1	41.5
1% with growth less than	-18.0	-16.2	-12.1	-6.2

CHANGES IN AAPCC BASED SIMULATED BUDGETS

Prospective budgets based on AAPCC estimates increased at a lower rate, and exhibited less volatility than reimbursements. Nationally, the AAPCC based budgets increased by an average annual rate of 10 percent from 1985 to 1987. The budgets increased by 8.8 percent between 1985 and 1986 and 11.2 percent between 1986 and 1987. Reimbursements, as noted above, grew at an average annual rate of 16 percent over this time period.

At the State level (see table 6.3), rates of increase of our locality-specific budgets varied considerably, but much less so than reimbursements. Average annual budget increases ranged from -1 percent (Minnesota) to 19 percent (West Virginia).[59] While there was variation, the average annual increases in simulated budgets for 44 States fell below 15 percent, with 25 States between 10 and 15 percent.

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[59] The low growth rate in Minnesota was attributable to a large jump in the number of risk-contracting enrollees in 1985. The high growth in West Virginia was due to a large increase in the AAPCC estimates for that State in 1986.

TABLE 6.3. Annual Growth Rates in State Specific Budgets

	Percent change in AAPCC 1985-1986	Percent change AAPCC 1986-1987	Percent change AAPCC 1985-1987
United States	8.81	11.15	20.94
Alabama	8.59	9.74	19.17
Alaska	20.35	12.78	35.72
Arizona	7.78	7.22	15.56
Arkansas	11.62	12.58	25.66
California	7.42	9.25	17.36
Colorado	6.08	4.01	10.33
Connecticut	7.74	7.53	15.86
Delaware	12.22	15.76	29.91
Dist. Columbia	7.67	9.04	17.40
Florida	8.77	13.44	23.39
Georgia	11.48	12.80	25.76
Idaho	9.82	13.29	24.42
Illinois	6.51	12.97	20.32
Indiana	10.66	13.75	25.88
Iowa	7.95	12.08	20.99
Kansas	2.88	13.66	16.93
Kentucky	8.88	14.87	25.07
Louisiana	13.97	10.22	25.63
Maine	9.27	12.11	22.51
Maryland	10.00	11.79	22.97
Massachusetts	7.05	11.94	19.83
Michigan	8.50	12.16	21.69
Minnesota	-8.12	6.60	-2.06
Mississippi	9.24	10.88	21.13
Missouri	5.69	12.88	19.30
Montana	9.39	12.71	23.28
Nebraska	8.52	11.10	20.56
Nevada	5.15	17.92	23.99
New Jersey	7.54	9.73	18.00
New Mexico	6.33	13.48	20.67

TABLE 6.3. Annual Growth Rates in State Specific Budgets--Continued

State	Percent change AAPCC 1985-1986	Percent change AAPCC 1986-1987	Percent change AAPCC 1985-1987
New York	7.82	7.52	15.92
North Carolina	12.24	13.49	27.38
North Dakota	7.78	11.46	20.13
Ohio	13.75	12.15	27.58
New Hampshire	9.77	6.35	16.75
Oklahoma	6.93	10.35	18.00
Oregon	4.09	2.58	6.78
Pennsylvania	11.32	15.80	28.91
Rhode Island	5.25	4.27	9.75
South Carolina	9.34	11.77	22.20
South Dakota	11.08	12.34	24.79
Tennessee	10.67	12.45	24.46
Texas	12.23	12.30	26.03
Utah	9.51	11.96	22.60
Vermont	6.99	6.24	13.67
Virginia	11.68	14.34	27.70
Washington	11.12	6.22	18.02
West Virginia	24.98	13.50	41.86
Wisconsin	8.58	12.46	22.11
Wyoming	10.61	15.26	27.48

NOTE: State budgets based on weighted average of county budgets within the State.

For 1985-1987, table 6.4 summarizes changes in county level AAPCC based budgets. As with reimbursements, the average county budget changed at a faster average annual rate[60] than the national average; reflecting the higher rates in less populous counties. Five percent of all county budgets increased at an average annual rate of over 17 percent, while another 5 percent experienced increases of less than 5 percent--leaving 90 percent of all counties with average annual changes in budgets of between 5 and 17 percent. The extremes of budget increases (about 2 percent of all counties) generally reflect special circumstances, such as the large jump in HMO enrollment in Minnesota counties (thereby reducing the total expenditures for fee-for-service enrollees).

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[60] Figures presented in table are county averages, unweighted by Medicare enrollment.

TABLE 6.4. Average Change in AAPCC Based Budgets by County : 1985-1987

	Percent change 1985-1986	Percent change 1986-1987	Percent change 1985-1987	Average annual growth rate
County average	10.1%	12.5%	23.9%	11.2%
5% with growth greater than	17.9	19.9	38.2	17.6
5% with growth less than	1.8	5.1	10.0	4.9
1% with growth greater than	23.8	24.8	46.6	21.1
1% with growth less than	-11.5	-5.7	-9.2	-4.7

COMPARISON OF SIMULATED BUDGETS TO REIMBURSEMENTS

An important element of a prospective budget system is the monitoring of the system to determine when budgets are exceeded and to trigger any feedback mechanisms. This section presents the results of our simulation of an AAPCC based prospective budget system. Below, we compare prospectively determined budgets to actual reimbursements for 1985-1987. Most of the analysis focuses on 1987 since, as noted above, both reimbursement and AAPCC data appear more stable for that year. The results presented below illustrate a method for a prospective budget system; as we have noted, problems with both the quality and timeliness of reimbursement data, plus measurement problems with the AAPCC projections would require considerable work to be done before such a method would be practical. Nevertheless, the results of the simulation do illustrate issues that are important to the design of a prospective budget system. For example, the greater year-to-year variations in expenditures in small counties present a significant problem for monitoring a system based on county-specific budgets.

A. Locality Specific Budgets

1. *State Level Prospective Budget*

We set State level budgets by weighting the county level AAPCC projection by the appropriate enrollment counts. The results are presented in table 6.5. Based on this method, the U.S. would have been $1.5 billion under budget in 1985, about even in 1986, and $1.1 billion over budget in 1987. From 1985 to 1987, reimbursements grew much more rapidly than the budgets. However, the aggregate level of AAPCC based expenditure estimates was well below reimbursements in 1985. In part this reflects problems with the AAPCC estimates noted earlier. As the AAPCC estimates have improved, they appear to be better able to track expenditures and, thus, be more appropriate for use as a budget.

In 1987, 22 States were within 5 percent of their budget, and 37 were within 10 percent. The outliers were Louisiana (59 percent over budget), Mississippi (23 percent over budget), Kentucky (21 percent over budget) and Rhode Island (20 percent **under** budget). Four States accounted for over $800 million in above budget reimbursements: Florida ($229 million), New York ($205 million), Pennsylvania ($186 million), and Louisiana ($182). Even though New York had the second highest expenditures over budget, it was not in the top 10 States in the percent by which it exceeded its budget (8.2 percent). At the other extreme, California was $336 million **under** budget in 1987.

To get some sense of the level of savings that could be achieved from a prospective budget approach--if the reimbursements from States that exceeded their budgets by more than 5 percent were recouped, it would have amounted to $1.6 billion in 1987. Such as strategy, however, would have an exceedingly disparate result by region of the country. Eleven of the 19 States that exceeded their budgets by more than 5 percent were from the South: Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Oklahoma. Making the trigger point for penalizing States more lenient would only exacerbate the regional disparity; as those States noted above generally had the highest percentage by which they exceeded their budget. How much of this is due to actual increases in reimbursements vs. measurement problems with either reimbursements or the AAPCC estimates is unknown.

TABLE 6.5. Medicare Total Part B Reimbursements v. Locality Specific Prospective Budgets-by State 1985-1987

State	Total Part B Reimbursements v. Budget					
	1985 Percent difference	1985 Dollar difference {thousands}	1986 Percent difference	1986 Dollar difference {thousands}	1987 Percent Difference	1987 Dollar Difference {Thousands}
United States	-6.68	(1,539,504)	-0.81	(203,043)	3.82	1,064,105
Alabama	-8.17	(26,067)	7.08	24,524	14.87	56,547
Alaska	-10.69	(1,605)	-15.30	(2,763)	-11.01	(2,242)
Arizona	-11.68	(42,617)	-8.58	(33,747)	-0.14	(600)
Arkansas	-3.35	(7,718)	-0.26	(675)	2.48	7,160
California	-12.74	(424,199)	-8.85	(316,650)	-8.60	(336,094)
Colorado	-17.81	(40,495)	3.44	8,308	-7.15	(17,940)
Connecticut	-11.87	(41,186)	-6.16	(23,045)	-1.51	(6,065)
Delaware	-2.60	(1,499)	-2.44	(1,580)	-1.67	(1,253)
Dist. Columbia	-4.57	(3,856)	7.22	6,568	1.12	1,112
Florida	-10.45	(189,539)	-4.95	(97,721)	12.90	288,802
Georgia	3.11	13,146	8.42	39,645	11.34	60,216
Idaho	-9.40	(6,323)	2.80	2,066	5.54	4,635
Illinois	1.89	19,415	6.56	71,644	4.12	50,765
Indiana	-10.45	(41,763)	12.69	56,141	-0.64	(3,213)
Iowa	2.83	6,397	-11.48	(28,066)	8.17	22,376
Kansas	-7.73	(18,038)	7.34	17,613	3.67	10,011
Kentucky	-14.22	(34,438)	14.59	38,467	20.88	63,230
Louisiana	12.61	31,214	36.80	103,764	58.69	182,432
Maine	-25.52	(25,815)	-13.99	(15,458)	-3.14	(3,890)
Maryland	-4.01	(16,687)	0.80	3,683	-1.17	(5,985)
Massachusetts	-0.78	(5,155)	38.21	270,218	0.14	1,137
Michigan	-7.09	(73,795)	3.01	33,970	-2.68	(33,929)
Minnesota	-6.13	(18,156)	-2.61	(7,106)	-8.99	(26,072)
Mississippi	-2.28	(4,105)	-8.47	(16,621)	22.78	49,595
Missouri	-0.10	(428)	13.68	64,638	16.21	86,426
Montana	-11.85	(7,886)	-0.01	(10)	-3.27	(2,686)
Nebraska	-17.31	(20,725)	-29.85	(38,795)	2.28	3,285
Nevada	-15.85	(15,839)	-9.56	(10,048)	-12.71	(15,753)
New Hampshire	-19.79	(15,093)	-3.02	(2,525)	2.75	2,445
New Jersey	-14.95	(133,200)	-7.42	(71,099)	-7.76	(81,565)
New Mexico	-17.03	(18,156)	-4.86	(5,508)	-9.84	(12,654)
New York	-3.87	(83,242)	-13.53	(314,067)	8.21	204,790
North Carolina	-5.26	(22,466)	0.06	273	6.91	37,582
North Dakota	-2.96	(1,688)	1.25	765	-1.72	(1,180)
Ohio	-5.73	(53,789)	0.93	9,924	8.08	96,731

TABLE 6.5. Medicare Total Part B Reimbursements vs Locality Specific Prospective Budgets-by State--Continued
1985 - 1987

	Total Part B Reimbursements Vs. Budget					
	1985 Percent difference	1985 Dollar difference {thousands}	1986 Percent difference	1986 Dollar difference {thousands}	1987 Percent difference	1987 Dollar difference {Thousands}
South Carolina	-7.34	(14,312)	-18.81	(40,107)	5.28	12,585
South Dakota	-0.60	(291)	6.74	3,628	4.27	2,583
Tennessee	-3.61	(12,458)	13.78	52,609	11.87	50,971
Texas	-7.75	(91,636)	2.74	36,356	7.05	105,101
Oklahoma	-22.03	(54,778)	0.55	1,467	8.62	25,282
Oregon	-8.22	(21,060)	-8.13	(21,684)	-5.09	(13,918)
Pennsylvania	6.51	92,119	7.01	110,467	10.16	185,522
Rhode Island	-4.17	(5,136)	-7.69	(9,979)	-20.05	(27,117)
Utah	-14.32	(12,618)	-10.46	(10,088)	-2.22	(2,396)
Vermont	-21.98	(8,933)	-7.05	(3,065)	6.06	2,799
Virginia	-5.93	(24,341)	-2.83	(12,963)	-1.70	(8,924)
Washington	-10.96	(41,509)	-13.76	(57,926)	15.93	71,224
West Virginia	-3.65	(5,757)	-7.20	(14,210)	-5.73	(12,814)
Wisconsin	-2.74	(11,178)	-0.88	(3,869)	-1.24	(6,188)
Wyoming	-8.31	(2,220)	-1.38	(408)	3.63	1,238

NOTE: Table prepared by Congressional Research Service. The 1985-1987 Average Annual Per Capita Cost data obtained from Louis Rossiter, Medical College of Virginia. Reimbursement data from Health Care Financing Administration State and County Reimbursement files. Reimbursements reflect date claim approved for payment, not date of service, and reflect all claims approved in a given year and received by HCFA by December 31 of the following year. AAPCC estimates for each year are set at 95 percent of the projected costs of fee-for-service medicare beneficiaries. For purposes of setting a budget, the AAPCC numbers have been set at 100 percent of the expected cost per beneficiary.

2. *County Level*

The results of our simulations at the county level illustrate the problems with designing a budget at a geographical level with as much diversity as U.S. counties. The 1986 population of U.S. counties ranges from 8.3 million in Los Angeles, California to 500 or less in counties like Loving, Texas or Hinsdale, Colorado. Population density ranges from over 67 thousand per square mile (New York, New York), to .1 per square mile (e.g., Dillingham, Arkansas).

Table 6.6 presents summary information on reimbursements v. budgets for county-specific prospective budgets. County-specific budgets illustrate several of the prospective budget issues raised in this report, i.e., random variation in reimbursements for small areas, measurement problems for both actual reimbursements and perhaps estimation of AAPCC for small geographic areas, and potential penalization of small rural areas for exceeding a budget when there are concerns over access to care for beneficiaries living in those areas.

TABLE 6.6. Medicare Total Part B Reimbursements v. Locality Specific Budget--Summary Statistics for Counties 1985-1987

	1985 Percent difference	1986 Percent difference	1987 Percent difference
Average county	-2.7%	5.4%	10.6%
5% with growth greater than	21.8	37.0	42.6
5% with growth less than	-23.8	-19.9	-13.1
1% with growth greater than	38.5	53.4	70.3
1% with growth less than	-32.8	-35.3	-26.3

In 1987, the average county would have exceeded its budget by 10.6 percent compared to the overall national excess of just under 4 percent. This reflects the large number of relatively small counties with reimbursements considerably in excess of their budgets. The table also illustrates the range in reimbursements compared to budgets, with 1 percent of all counties exceeding their budget by over 70 percent and another 1 percent being under budget by more than 26 percent. Also, more than 150 counties exceeded their budgets by over 42 percent, with over 150 other counties being at least 13 percent under budget.

The extent of either reporting problems, problems with AAPCC estimates for small areas, or the effects of wide variation in year to year expenditures in small areas can be seen by examining counties above and below their budgets. In 1987, 18 of the 20 counties exceeding their budget by the greatest percentage were located in Louisiana. As noted earlier, year to year changes in reimbursements in Louisiana were extremely erratic, and most likely represent measurement problems, not changes in actual services provided, or prices charged. In 1986 the pattern was more mixed, but the southern States clearly dominated the counties exceeding their budgets by the widest margin. Sixteen out of the top 20 and 38 out of the top 50 counties with the highest reimbursement to budget ratios were in southern (generally small) counties.

The nonsouthern counties in the top 50 also tended to be very small counties, perhaps reflecting the naturally greater variation in year to year expenditures in small areas.

The notion that random variation in expenditures in small areas would be an issue in locality specific prospective budgets is reinforced when we examine counties that were most under budget. If random variation plays a part, we would expect that small counties would not only be disproportionately represented in the list of counties farthest over budget, but also under budget. Generally, this proves to be true, with two-fifths of the 50 counties farthest over budget being relatively small counties with total reimbursements in 1987 of under $1 million and only two relatively large counties in California having reimbursements of over $50 million.

B. National Prospective Budget Standard

The results of the simulations based on a single, national per capita budget differ significantly from the locality specific simulations. Generally, a national budget, which applies a single per beneficiary percent increase standard to all geographic areas, resulted in the few large urban States and counties being over budget, while the smaller States, and the large number of counties with few medicare beneficiaries were under budget.

1. State Level Results

Table 6.7 presents the results of our national budget simulations. For each year, the national per capita budget was weighted by State enrollment to determine a State prospective budget. The national per capita budgets were $791, $854, and $943 for years 1985, 1986, and 1987 respectively. For 1987, most of the States in which reimbursements exceeded budgets were urban States. This contrasts sharply with the results of the State-specific budget simulation, where most States over budget were more rural southern States. States exceeding their budgets by the highest percent included California, the District of Columbia, Florida, Michigan, Nevada, New York, and Pennsylvania. The most striking comparison with the State-specific simulation is for California; it was over $300 million **under** its State-specific budget, but almost $1 billion **over** its nationally determined budget. If excess reimbursements were recouped from States that exceeded their budgets by more than 5 percent in 1987, the total would be almost $3 billion.

TABLE 6.7. Medicare Total Part B Reimbursements Compared to Budget Based on National Per Capita Budget--by State

State	Total Part B Reimbursements Vs. Budget					
	1985 Percent difference	1985 Dollar difference {Thousands}	1986 Percent difference	1986 Dollar difference {Thousands}	1987 Percent Difference	1987 Dollar Difference {Thousands}
United States	-6.68	(1,540,150)	-0.81	(201,889)	3.81	1,063,157
Alabama	-28.55	(117,134)	-17.65	(79,550)	-13.71	(69,385)
Alaska	3.54	458	2.20	329	2.06	367
Arizona	3.23	10,084	4.46	15,347	12.09	45,412
Arkansas	-21.45	(60,726)	-17.27	(53,457)	-14.28	(49,357)
California	31.39	694,363	37.46	888,618	35.78	941,477
Colorado	-19.65	(45,720)	-0.14	(354)	-11.49	(30,226)
Connecticut	-8.99	(30,193)	-4.31	(15,790)	-0.76	(3,021)
Delaware	-4.91	(2,900)	-3.95	(2,594)	-1.45	(1,081)
Dist. Columbia	39.68	22,891	56.36	35,135	45.03	31,123
Florida	12.78	184,094	17.41	278,011	39.16	711,034
Georgia	-13.55	(68,266)	-8.32	(46,325)	-5.91	(37,155)
Idaho	-32.46	(29,298)	-23.86	(23,802)	-21.83	(24,673)
Illinois	-4.43	(48,356)	-0.91	(10,626)	-1.77	(23,073)
Indiana	-32.73	(174,126)	-14.51	(84,607)	-22.93	(148,761)
Iowa	-31.03	(104,741)	-41.07	(150,794)	-27.62	(113,084)
Kansas	-17.49	(45,657)	-7.68	(21,425)	-8.89	(27,608)
Kentucky	-45.45	(173,080)	-27.63	(115,314)	-21.71	(101,536)
Louisiana	-22.26	(79,760)	-4.53	(18,313)	8.09	36,928
Maine	-42.54	(55,772)	-33.89	(48,731)	-25.66	(41,422)
Maryland	9.16	33,493	14.47	58,315	10.97	49,983
Massachusetts	8.20	49,696	52.49	336,429	11.78	83,511
Michigan	11.94	103,083	24.87	231,575	18.61	193,260
Minnesota	-25.44	(94,843)	-24.03	(83,849)	-29.11	(108,413)
Mississippi	-33.52	(88,524)	-37.89	(109,610)	-17.51	(56,718)
Missouri	-21.45	(121,931)	-13.38	(82,950)	-8.41	(56,878)
Montana	-27.93	(22,742)	-19.04	(17,118)	-21.88	(22,239)
Nebraska	-43.24	(75,437)	-51.75	(97,775)	-29.62	(62,133)
Nevada	18.71	13,259	24.96	18,987	18.77	17,101
New Hampshire	-36.07	(34,519)	-22.95	(24,189)	-22.02	(25,833)
New Jersey	-4.53	(35,923)	3.33	28,622	1.96	18,629
New Mexico	-20.69	(23,076)	-9.24	(10,974)	-13.85	(18,653)
New York	11.17	207,851	-0.17	(3,499)	25.11	541,938
North Carolina	-32.32	(193,166)	-27.83	(184,971)	-22.93	(173,053)
North Dakota	-22.99	(16,527)	-20.86	(16,403)	-21.62	(18,579)
Ohio	-17.83	(192,041)	-9.60	(114,513)	-2.78	(37,048)

Table 6.7. Medicare Total Part B Reimbursements Compared to Budget Based on National Per Capita Budget-by State--Continued

State	Total Part B reimbursements v. budget					
	1985 Percent difference	1985 Dollar difference {thousands}	1986 Percent difference	1986 Dollar difference {thousands}	1987 Percent difference	1987 Dollar difference {thousands}
Oklahoma	-39.95	(128,940)	-23.56	(82,406)	-18.71	(73,342)
Oregon	-15.59	(43,421)	-16.91	(49,864)	-14.64	(44,511)
Pennsylvania	7.55	105,921	10.77	164,011	17.95	306,002
Rhode Island	3.05	3,496	-3.33	(4,124)	-20.47	(27,824)
South Carolina	-38.05	(111,008)	-46.55	(150,789)	-32.47	(120,677)
South Dakota	-39.80	(31,859)	-34.19	(29,857)	-35.35	(34,482)
Tennessee	-31.61	(153,666)	-18.56	(99,001)	-19.56	(116,817)
Texas	-11.63	(143,591)	-0.10	(1,293)	3.34	51,596
Utah	-27.07	(28,019)	-25.04	(28,855)	-18.94	(24,680)
Vermont	-40.84	(21,888)	-30.98	(18,143)	-25.15	(16,465)
Virginia	-20.33	(98,614)	-17.09	(91,879)	-15.39	(93,752)
Washington	-17.58	(71,962)	-19.83	(89,799)	8.57	40,941
West Virginia	-32.09	(71,845)	-24.95	(60,843)	-21.64	(58,284)
Wisconsin	-23.19	(119,657)	-22.05	(124,012)	-21.86	(137,430)
Wyoming	-28.80	(9,912)	-23.33	(8,873)	-18.38	(7,949)

NOTE: Table prepared by Congressional Research Service. National per capita budgets based on enrollment-weighted county AAPCC estimates of the Health Care Financing Administration actuaries. National budgets were applied to State enrollments without adjustments for type of enrollee or any locality specific characteristics (e.g., urban v. rural).

2. *County Level Results.*

The application of an unadjusted national per capita budget at the county level resulted in the vast majority of all counties' reimbursements being under budget, with those counties with excess reimbursements generally confined to the largest urban counties. In 1987, over 85 percent of all counties were under budget, even though the U.S. as a whole was almost 4 percent over budget. The counties exceeding their budgets by the highest percent included those around Miami--Ft. Lauderdale--Palm Beach, Florida, the five counties constituting New York City, Los Angeles and Orange Counties in California, and Philadelphia county Pennsylvania. The top 50 counties' reimbursements exceeded their budgets by over $2.5 billion on total reimbursements of just over $7 billion.

Table 6.8 presents summary information on reimbursements v. budgets for county budgets based on a national per capita prospective budget.

TABLE 6.8. Medicare Total Part B Reimbursements Compared to National Per Capita Budget Summary Statistics for Counties 1985-1987

	1985 Percent difference	1986 Percent difference	1987 Percent difference
Average County	-27.8%	-21.2%	-17.2%
5% with growth greater than	2.8	10.8	15.6
5% with growth less than	-50.0	-48.1	-40.9
1% with growth greater than	25.5	33.4	40.6
1% with growth less than	-56.4	-61.2	-47.4

DISCUSSION

The simulations presented in this chapter illustrate a number of issues discussed throughout this report. The locality-specific targets highlighted 1) data quality and measurement problems that would make it difficult to set accurate prospective budgets, particularly for small geographic areas, and to effectively monitor a prospective budget system; 2) the problem of random variations in year-to-year reimbursements for small enrollment areas such as rural counties, and the potential this has for both unfairly penalizing some geographic areas and for accurately identifying areas with unreasonably high increases in either/or both volume of services or price of services; 3) the issue raised in chapter 4 that locality-specific budgets may penalize areas for growth in excess of historical rates, even if growth is necessary to improve access to and quality of care in an area.

The national per capita budgets highlighted 1) the extreme difference in locality specific v. national prospective budgets it terms of the areas that would be affected by monitoring and feedback of the budgets; 2) the clear line that an unadjusted national budget draws between large urban areas and other geographic subdivisions and 3) that the potential amount of recouped excess reimbursements, other things being equal, appears greater under a national prospective budget system.

APPENDIX A

FORMULAS USED IN CHAPTER 5

The formulas below represent our basic approach to measuring beneficiary, price and net residual components to the growth in allowed charges. A number of variations on the basic approach were used to generate the tables in chapter 5.

Let A = Allowed Charges, B = the number of fee-for-service enrollees, P = average price per unit, and V = the volume/intensity per enrollee (or net residual). Also, let subscript i denote the procedure code, subscript g denote the elements of i in the relevant procedure or specialty grouping, subscript j denote the locality, subscript t denote the base year of the calculation, and subscript n denote the interval of time being measured.

Then the growth in allowed charges for procedure group or specialty, g, can be decomposed as follows:

$$\begin{aligned} g(A_g) &= -1 + [A_{gt+1}/A_{gt}] \\ &= -1 + [\Sigma_{i\in g}A_{i(t+n)}/\Sigma_{i\in g}Ait] \\ &= -1 + [B_{(t+n)} \cdot \Sigma_{i\in g}(P_{i(t+n)} \cdot V_{i(t+n)})] / [B_t \cdot \Sigma_{i\in g}(P_{it} \cdot V_{it})] \\ &= -1 + (B_{(t+n)}/B_t) \cdot [\Sigma_{i\in g}(P_{i(t+n)} \cdot V_{i(t+n)})] / [\Sigma_{i\in g}(P_{i(t+n)} \cdot V_{it})] \cdot \\ &\qquad [\Sigma_{i\in g}(P_{i(t+n)} \cdot V_{it})] / [\Sigma_{i\in g}(P_{it} \cdot V_{it})] \end{aligned}$$

Similarly, the composition of expenditure growth by locality can be specified as follows:

$$\begin{aligned} g(A_j) &= -1 + [A_{jt+1}/A_{jt}] \\ &= -1 + [\Sigma_i A_{ij(t+n)}/\Sigma_i A_{ijt}] \\ &= -1 + [B_{j(t+n)} \cdot \Sigma_i(P_{ij(t+n)} \cdot V_{ij(t+n)})] / [B_{jt} \cdot \Sigma_i(P_{ijt} \cdot V_{ijt})] \\ &= -1 + (B_{j(t+n)}/B_{jt}) \cdot [\Sigma_i(P_{ij(t+n)} \cdot V_{ij(t+n)})] / [\Sigma_i(P_{ij(t+n)} \cdot V_{ijt})] \cdot \\ &\qquad [\Sigma_i(P_{ij(t+n)} \cdot V_{ijt})] / [\Sigma_i(P_{ijt} \cdot V_{ijt})] \end{aligned}$$

The computer algorithms used to generate the tables in chapter 5, all follow from the above basic formulas.

DATA SOURCES AND TRANSFORMATIONS FOR CHAPTER 6

The analysis file was created from five county-level data sources: the Area file, AAPCC and HMO enrollment data, HCFA reimbursement data, HCFA enrollment data, and a county to prevailing charge locality crosswalk file. In order to insure that all of the files were merged correctly and maintain consistent definitions of county boundaries, each data source was edited and reduced to include only those counties which were common across data sources.

Only the Area Resource file included Yellowstone Park County in Montana (this is different from Yellowstone county) so the park was dropped from the analysis file. The AAPCC and HMO enrollment data were provided by Lou Rossiter of the Medical College of Virginia. These data did not include Hawaii, so the state was also dropped from the analysis file. In addition, this file did not include data for disabled or ESRD enrollees, so this information was entered by hand from data published in the *Federal Register*

With the HCFA enrollment and reimbursement data and with the AAPCC data, modifications were made to South Dakota, Virginia, and Alaska to preserve consistency among all the data sources. Two counties in South Dakota were combined into one, a number of independent cities in the State of Virginia were combined with their nearest county, and Alaska was combined to a single State wide value. For the AAPCC value, the numbers for each county in Alaska were weighted by the enrollment for that county to derive the State wide AAPCC values. Finally, the reimbursement and enrollment files provided by HCFA included an extra value for each State that was not county specific. These reimbursement and enrollment figures were distributed to counties throughout the State based on the percent of State enrollment or reimbursement in each county.

After combining the ARF, AAPCC, reimbursement and enrollment files into a single consistent-level file, a crosswalk file provided by the PPRC was used to convert all of the data to the level of the prevailing charge locality. Generally, a prevailing charge locality was an aggregation of a number of counties. In a few cases, mainly metropolitan areas, the county level data was allocated between two prevailing charge localities. This was done by weighting the data by the population over age 65 in each of the prevailing charge localities. An exception was made in the county of Los Angeles, where population data for its six prevailing charge localities were unreliable, so the county was treated as a single prevailing charge locality.

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